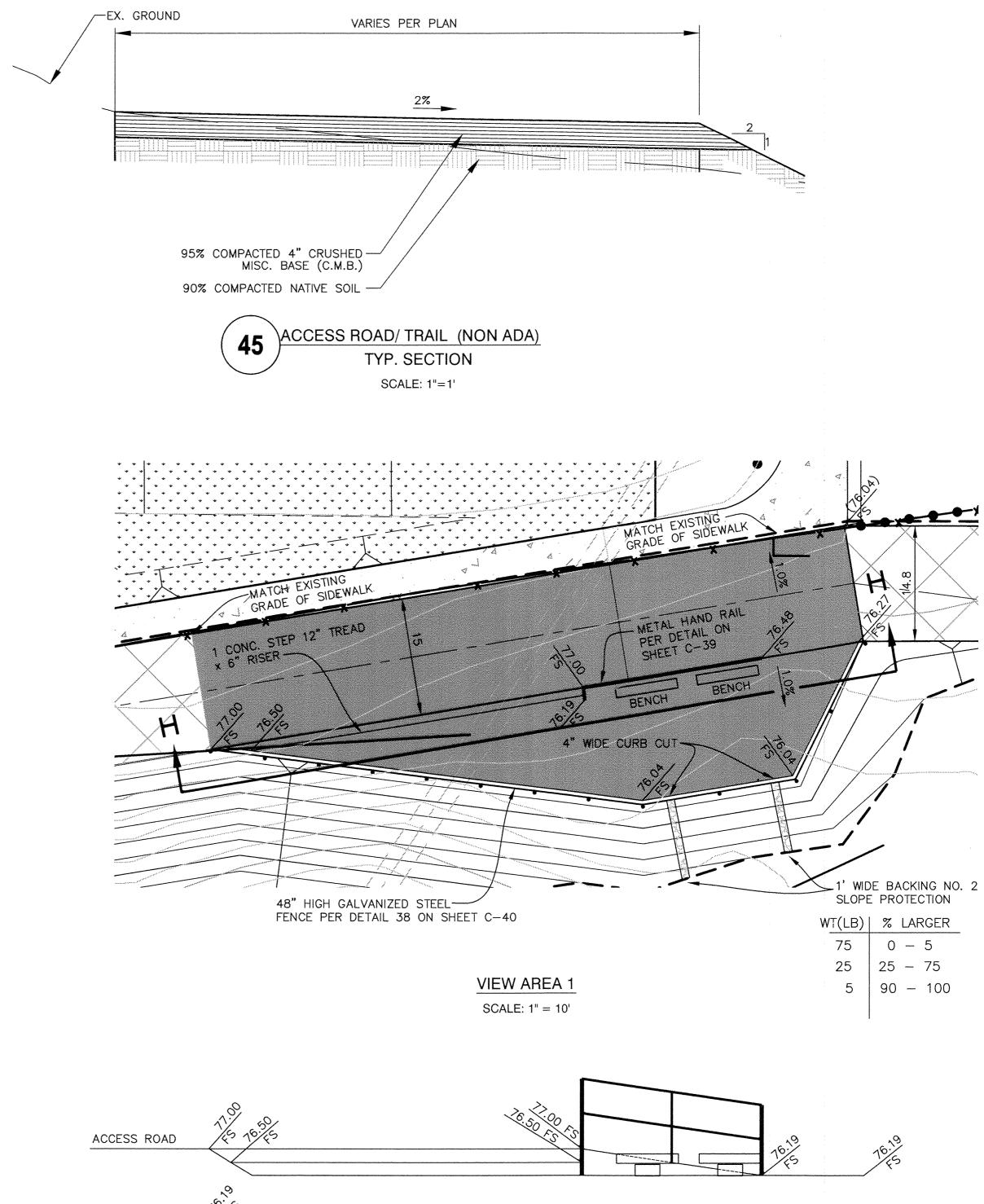
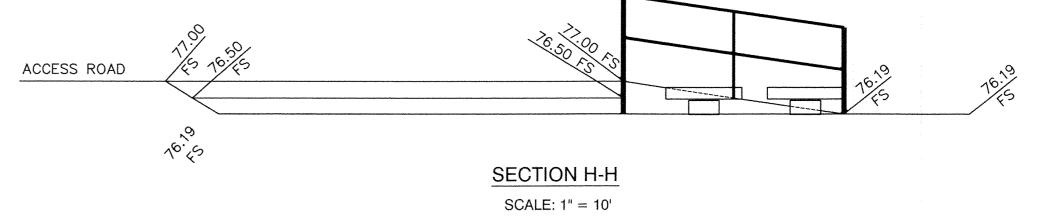


CONSTRUCTION NOTES: 1. APPROVED MATERIAL FOR CONSTRUCTION OF DEVICE IS 6" CONCRETE WITH NO. 4 BARS LONGITUDINALLY 11" MAX. ON CENTER, WITH NO. 4 TIE BARS 12" ON CENTER OR APPROVED EQUAL.





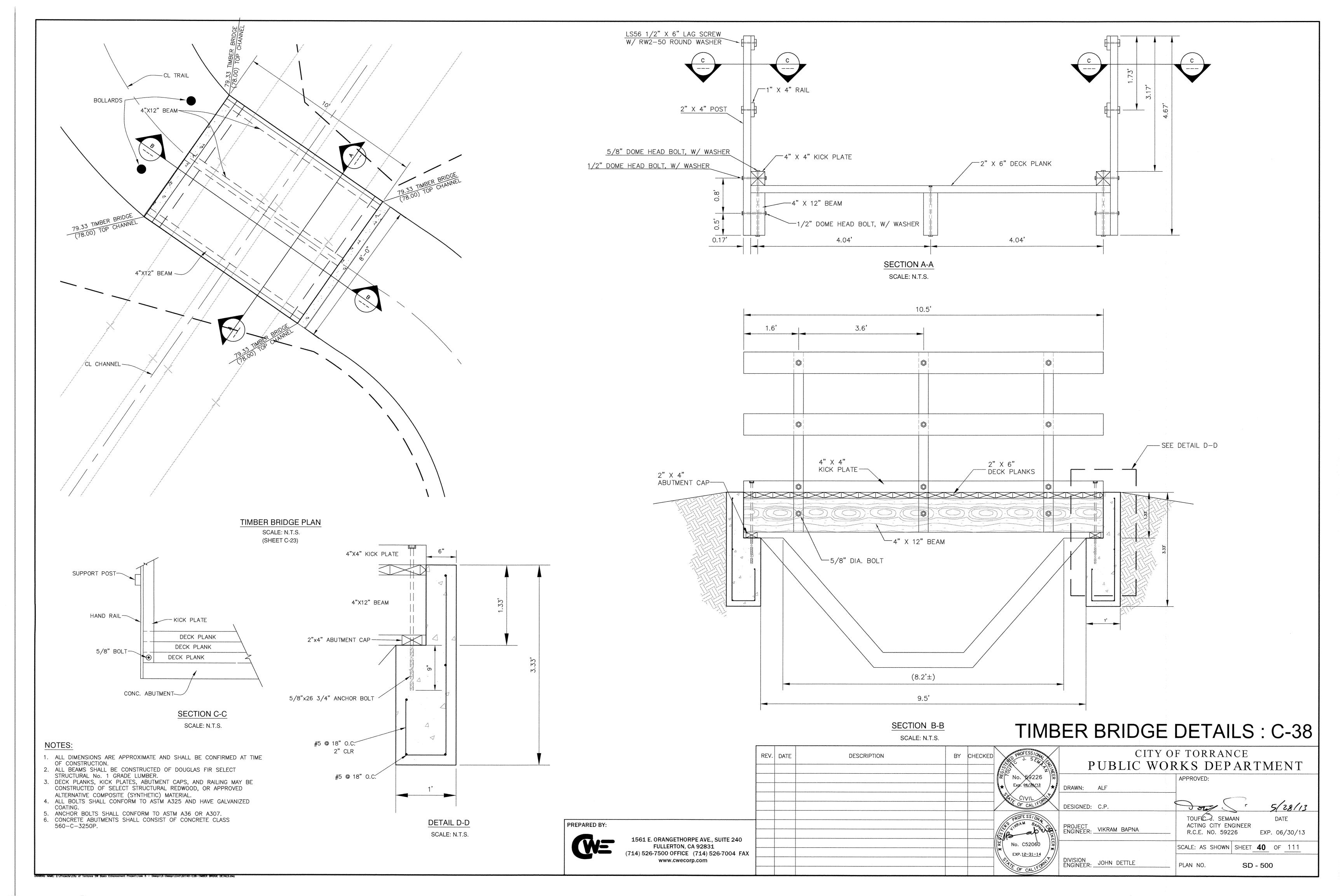


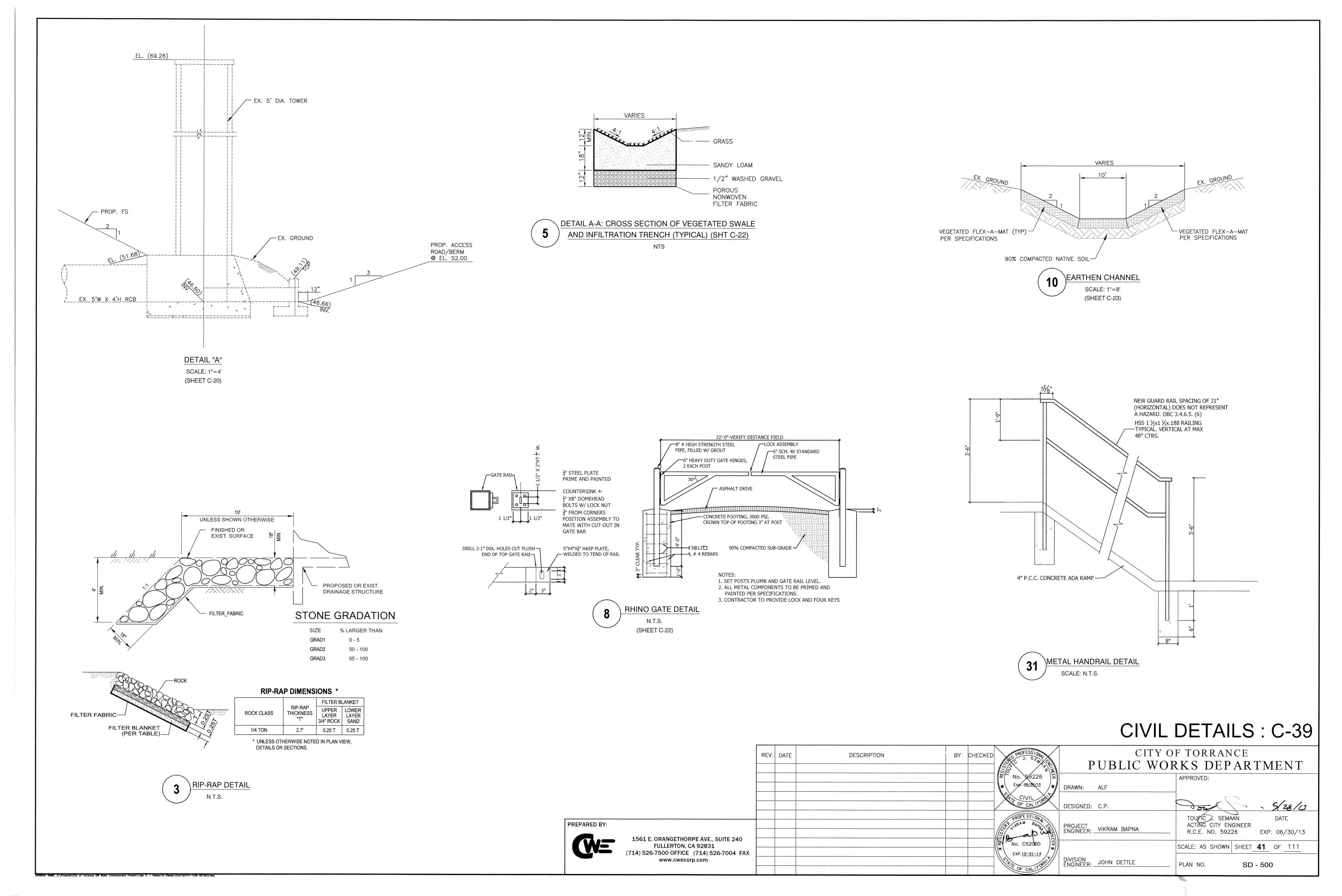
CIVIL ROAD AND TRAIL TYPICAL-SECTIONS: C-37

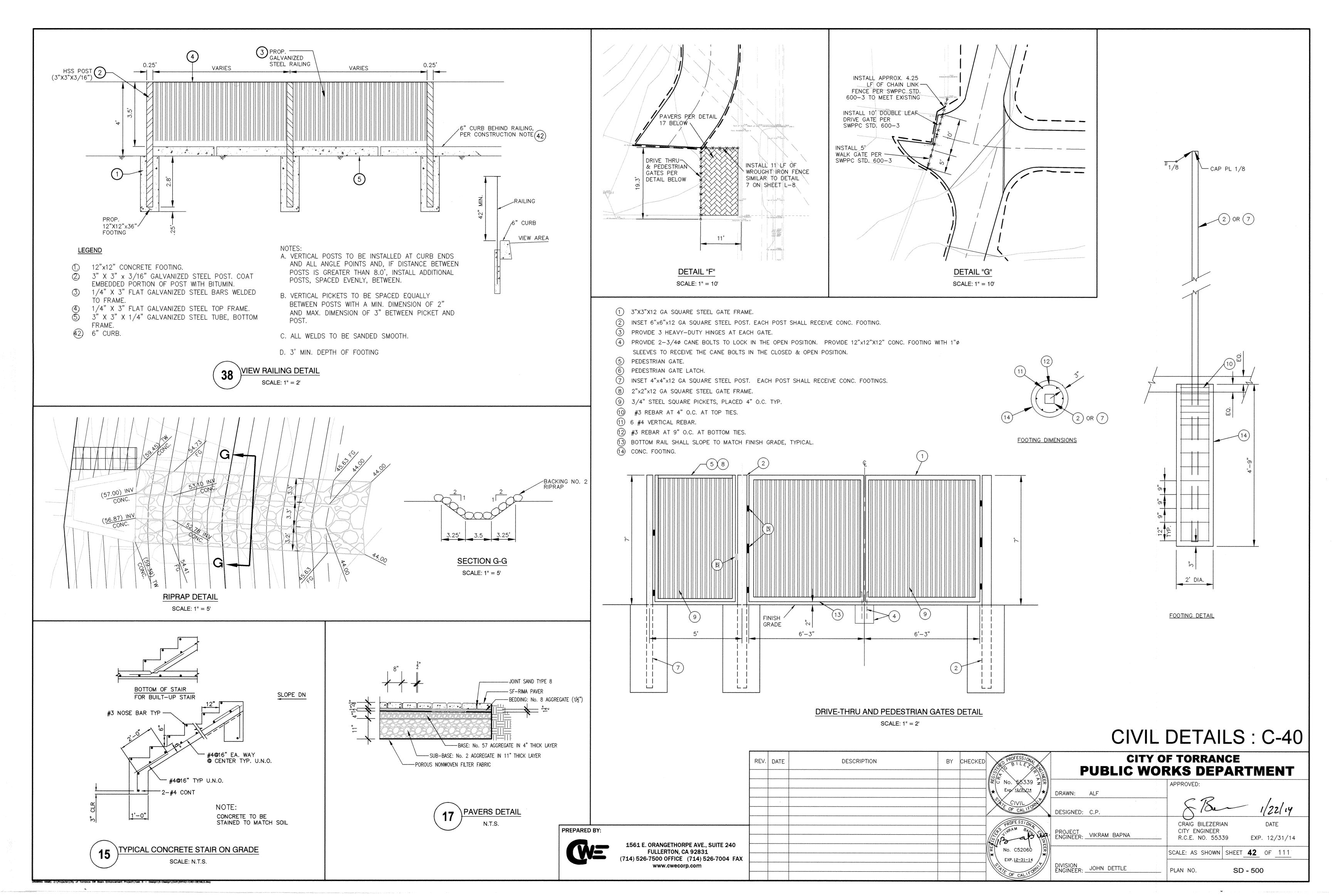
25.7		DEGODIOTION		OROFESS/O	CITY	OF TORRANCE
REV.	DATE	DESCRIPTION	BY CHECKE	J. SEWASIE		RKS DEPARTMENT
				No. 59226	1 CBEIC WO	APPROVED:
				Exp. 06/39/13	DRAWN: ALF	
				OF CALIFORN	DESIGNED: C.P.	5/28/13
				PRUFESS/OWAY RAM BAANA REPRESENTED TO THE PROPERTY OF THE PR	PROJECT ENGINEER: VIKRAM BAPNA	TOUFIC J. SEMAAN DATE ACTING CITY ENGINEER R.C.E. NO. 59226 EXP. 06/30/13
				¬ *\		SCALE: AS SHOWN SHEET 39 OF 111
200				EXP. 12-31-14 OF CAL 1FORTH	DIVISION ENGINEER: JOHN DETTLE	PLAN NO. SD - 500

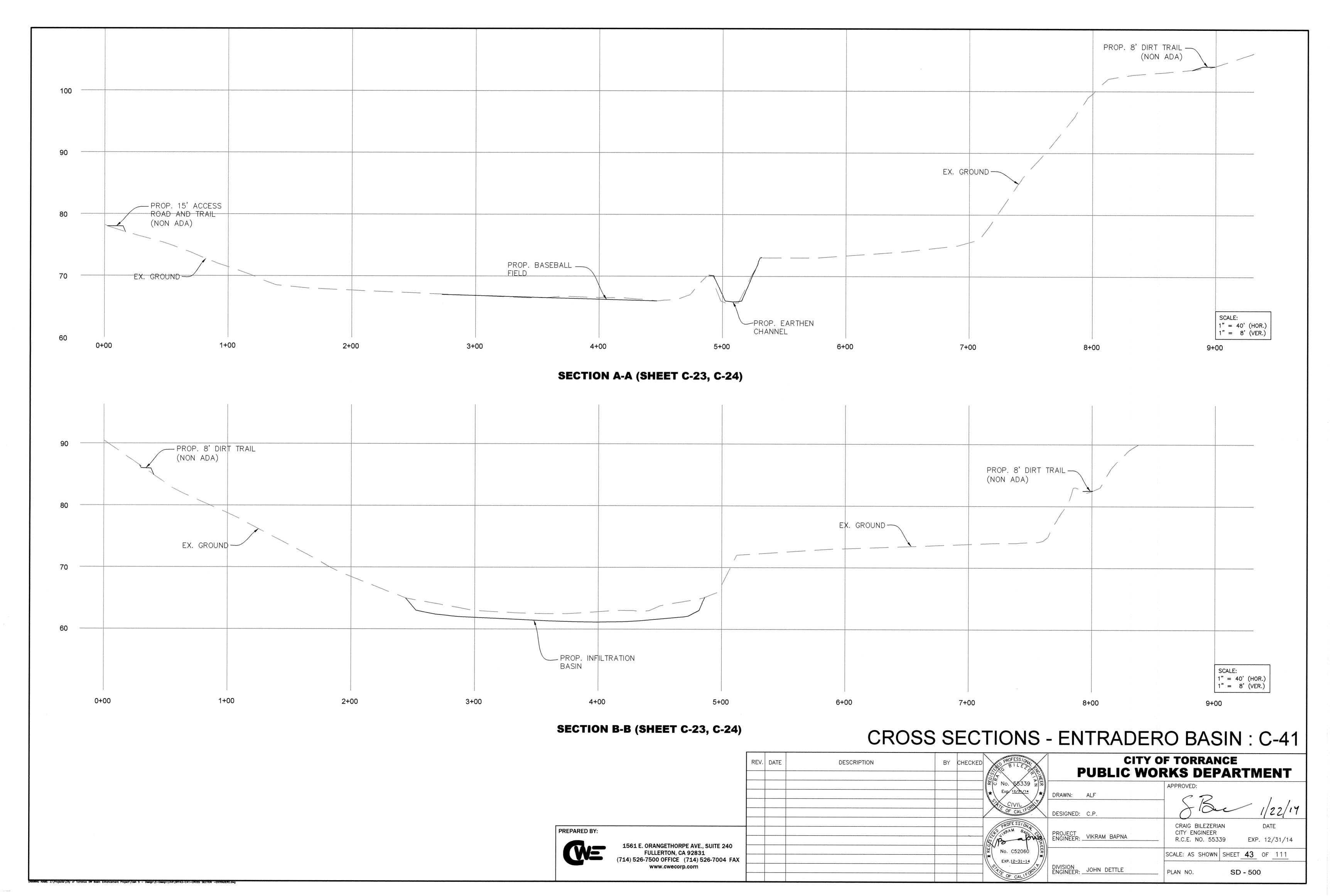


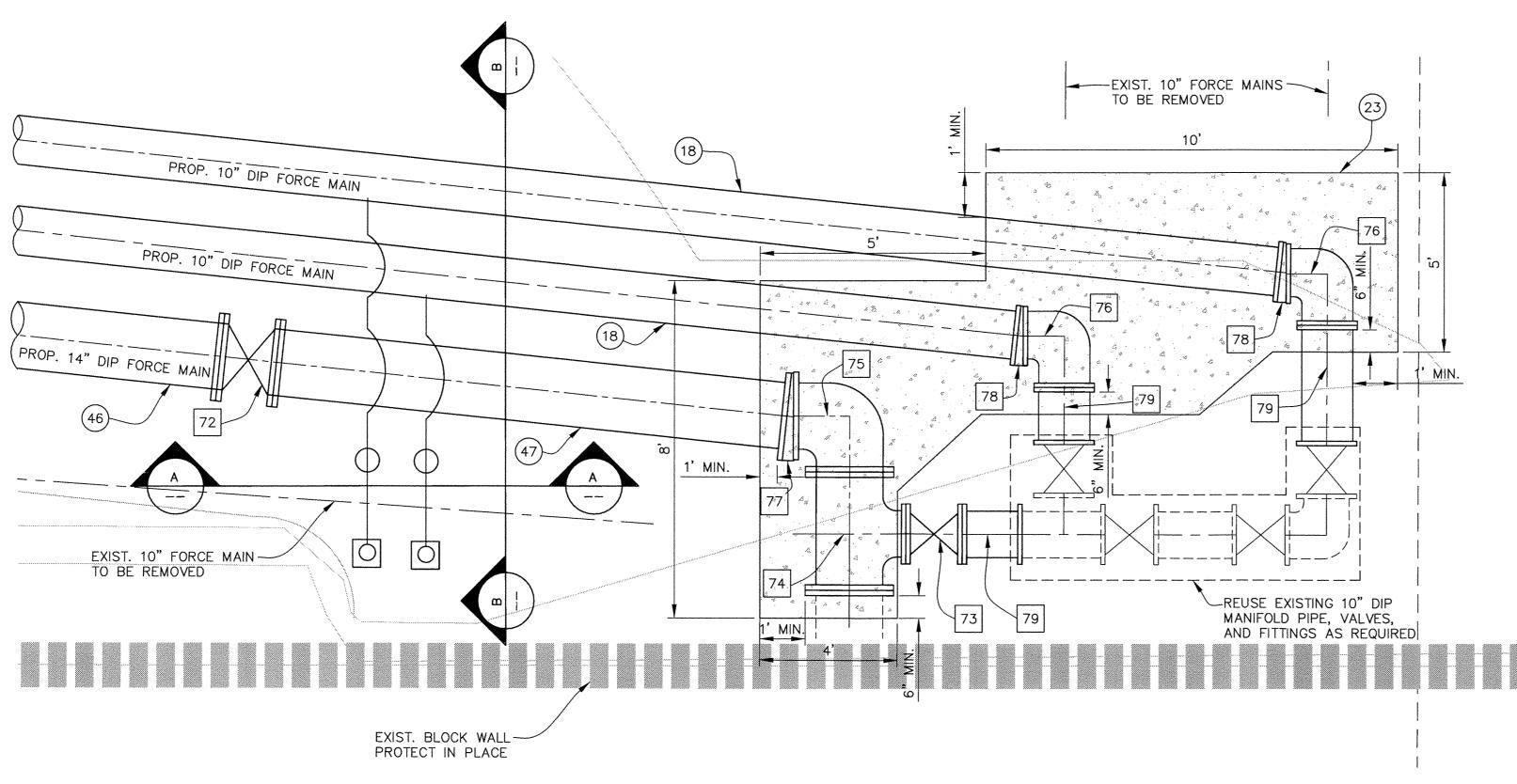
1561 E. ORANGETHORPE AVE., SUITE 240 FULLERTON, CA 92831 (714) 526-7500 OFFICE (714) 526-7004 FAX www.cwecorp.com



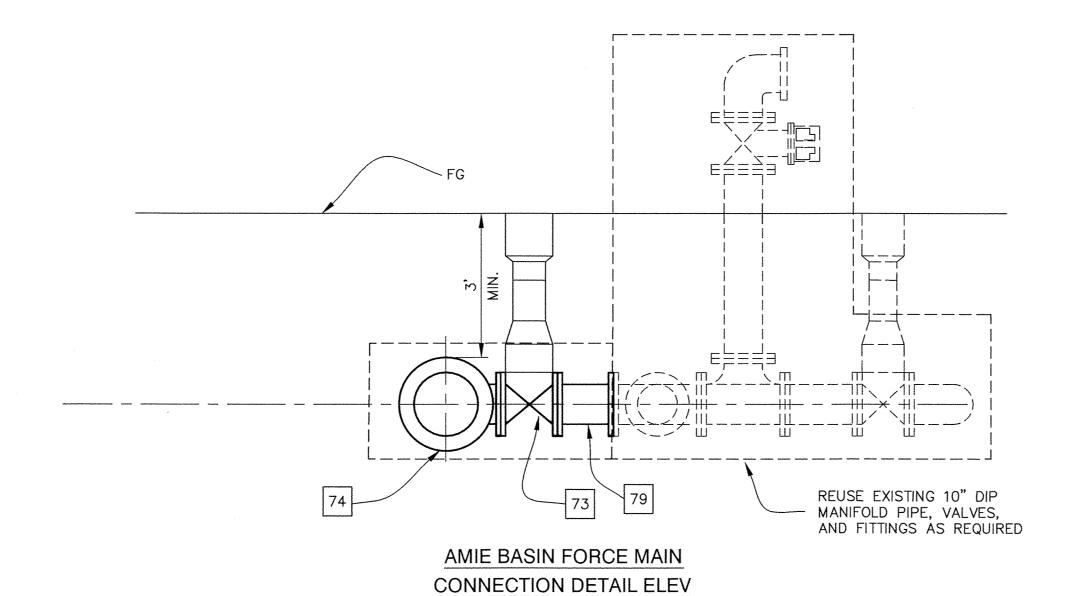








AMIE BASIN FORCE MAIN
CONNECTION DETAIL PLAN
SCALE: 1" = 2'



SCALE: 1" = 2'

	Р	ARTS LIST FOR FORCE MAIN CONNECTION							
ITEM	ITEM QTY DESCRIPTION								
72	1	14" CL 125 NRS CAST IRON GATE VALVE							
73	1	10" CL 125 NRS CAST IRON GATE VALVE							
74	1	16" X 10" CL 125 DUCTILE IRON TEE							
75	1	16" X 14" CL 125 DUCTILE IRON REDUCING 90° ELBOW							
76	2	10" CL 125 DUCTILE IRON 90" ELBOW							
77	1	14" CL 125 DUCTILE IRON 6' BEVELED FLANGE FILLER							
78	2	10" CL 125 DUCTILE IRON 6" BEVELED FLANGE FILLER							
79	3	10" CL 150 DUCTILE IRON PIPE SPOOL LENGTH TO BE DETERMINED PER FIELD DIMENSIONS							

CONSTRUCTION NOTES:

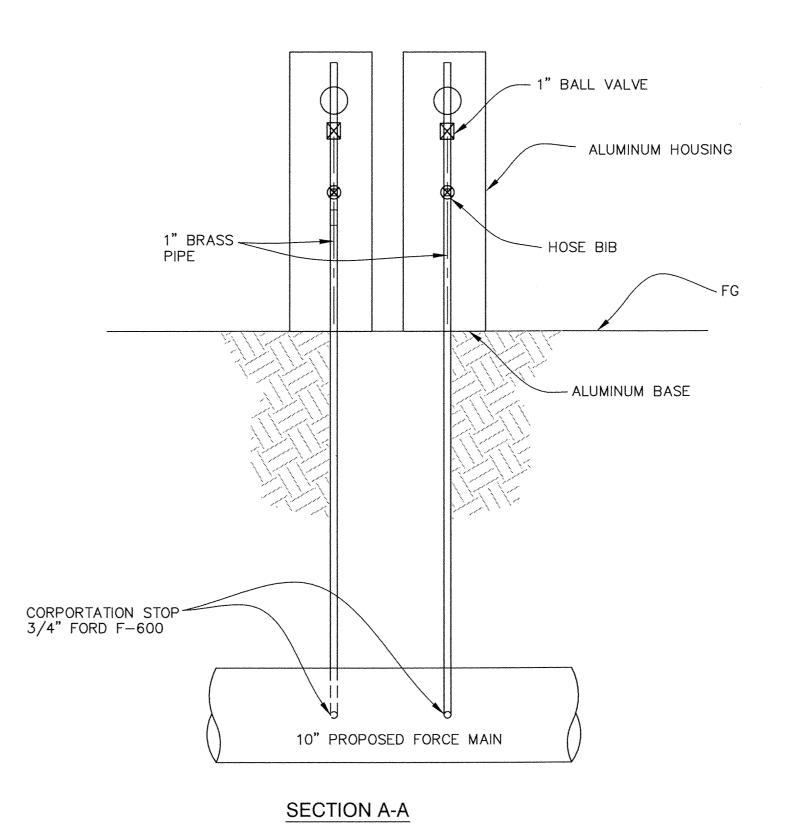
18—10" CL 150 DUCTILE IRON PIPE FORCE MIAN, LENGTH PER PLAN.

CONSTRUCT CONCRETE ENCASEMENT OVER FORCE MAIN ELBOWS WITH ALL

14" CL 150 DUCTILE IRON PIPE FORCE MAIN, LENGTH PER PLAN.

14" CL 150 DUCTILE IRON PIPE SPOOL, LENGTH TO BE DETERMINED PER FIELD DIMENSIONS.





SCALE: N.T.S.

#88WC SPECIFICATIONS

SAMPLING STATIONS SHALL BE X' BURY, WITH A 1"

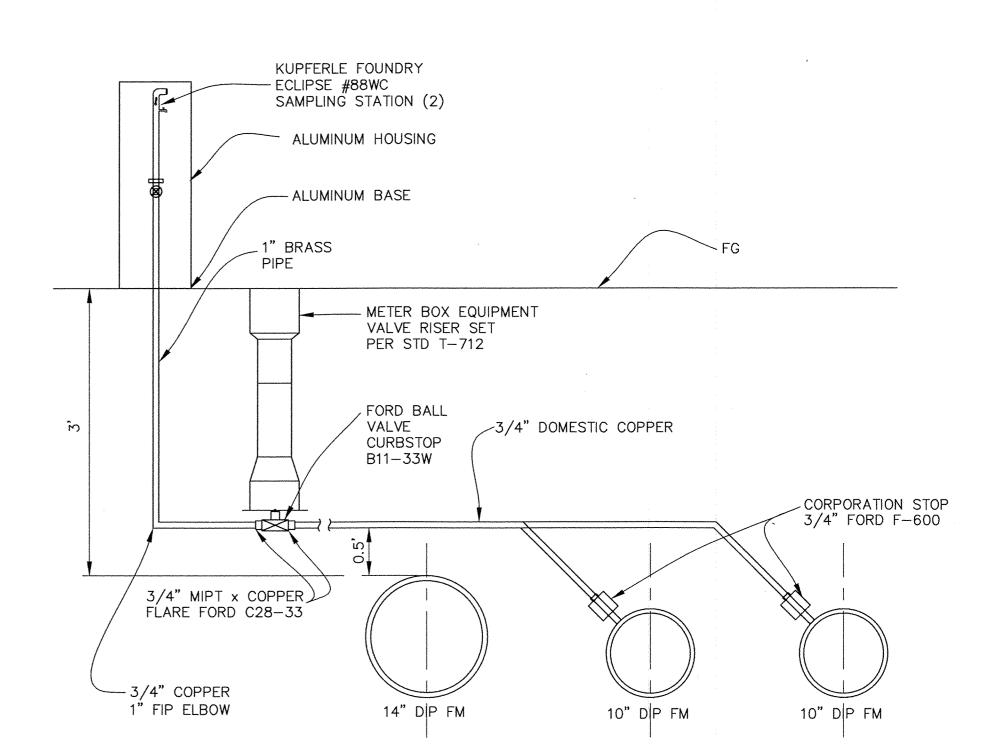
MIP INLET, AND A 1" FIP DISCHARGE. A 1/4" BENT-NOSE SAMPLING BIBB SHALL BE LOCATED BEFORE THE DISCHARGE.

ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE, ALUMINUM—CAST HOUSING.

WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND THE WATER WILL FLOW IN AN ALL BRASS WATERWAY.

ALL WORKING PARTS WILL ALSO BE OF BRASS AND BE REMOVABLE FROM ABOVEGROUND WITH NO

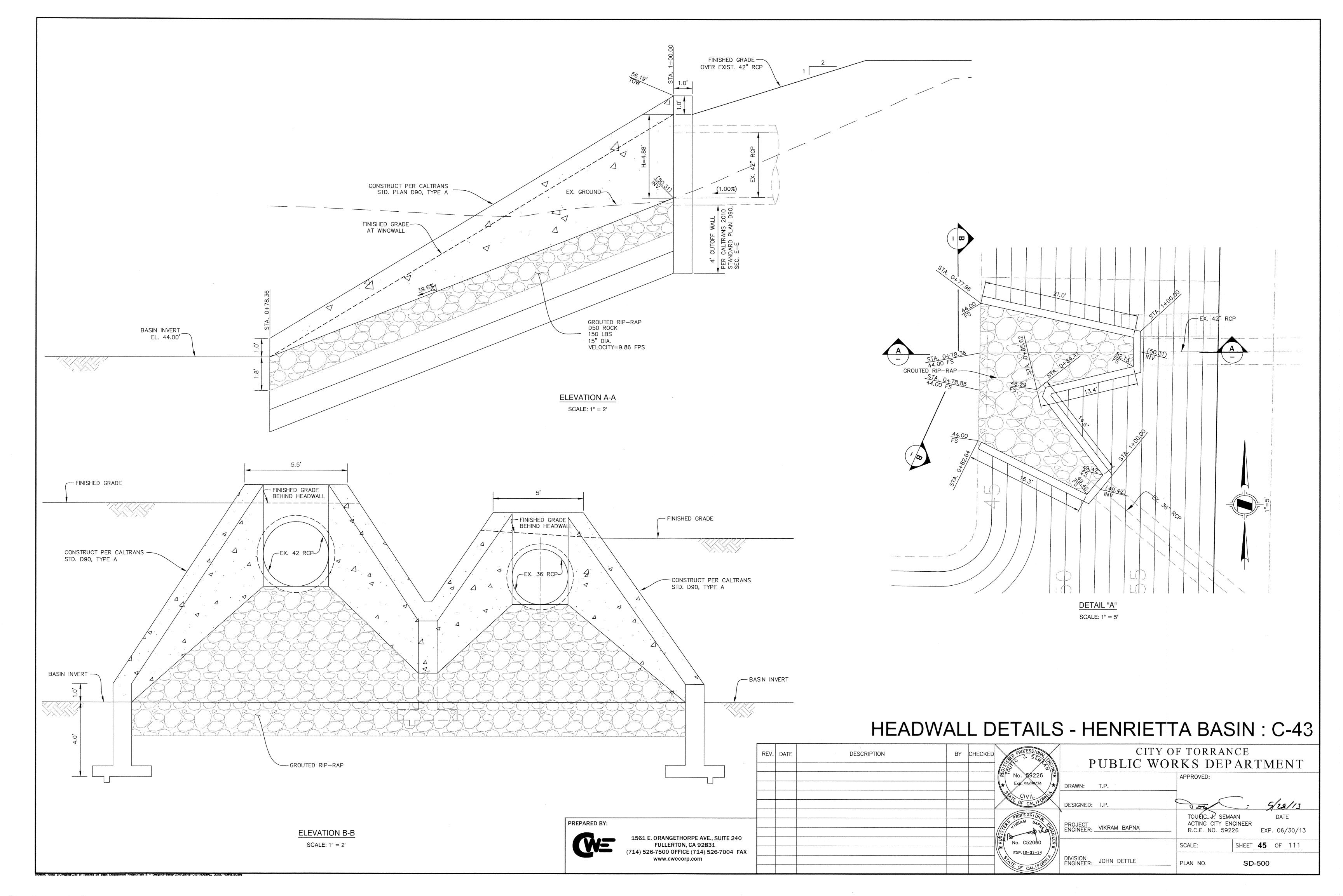
A 1" BALL VALVE WILL CONTROL THE WATER FLOW, AND BE LOCATED BEFORE (OR AFTER) THE SAMPLING BIBB, AS MANUFACTURED BY KUPFERLE FOUNDRY, ST. LOUIS, MO 63102

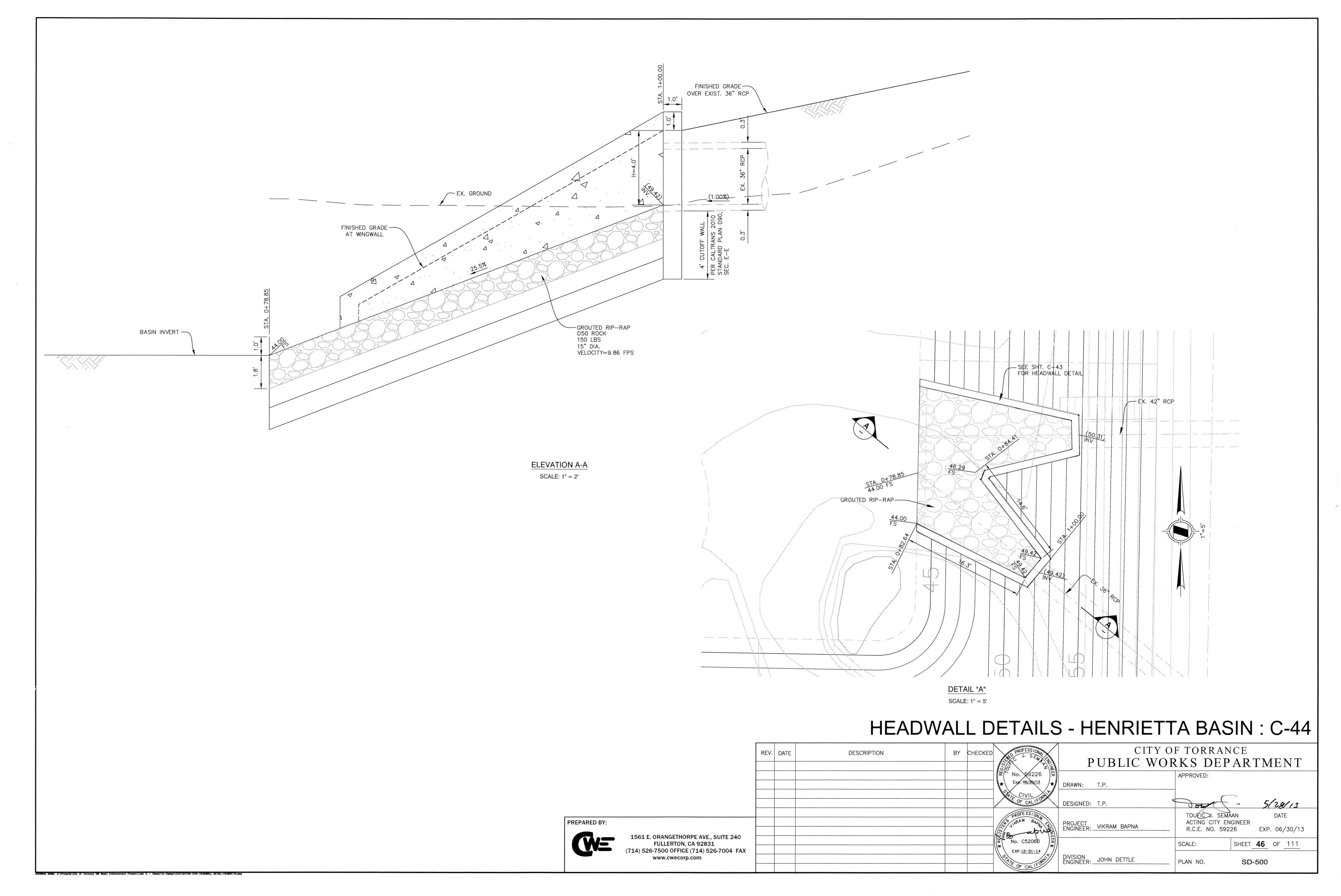


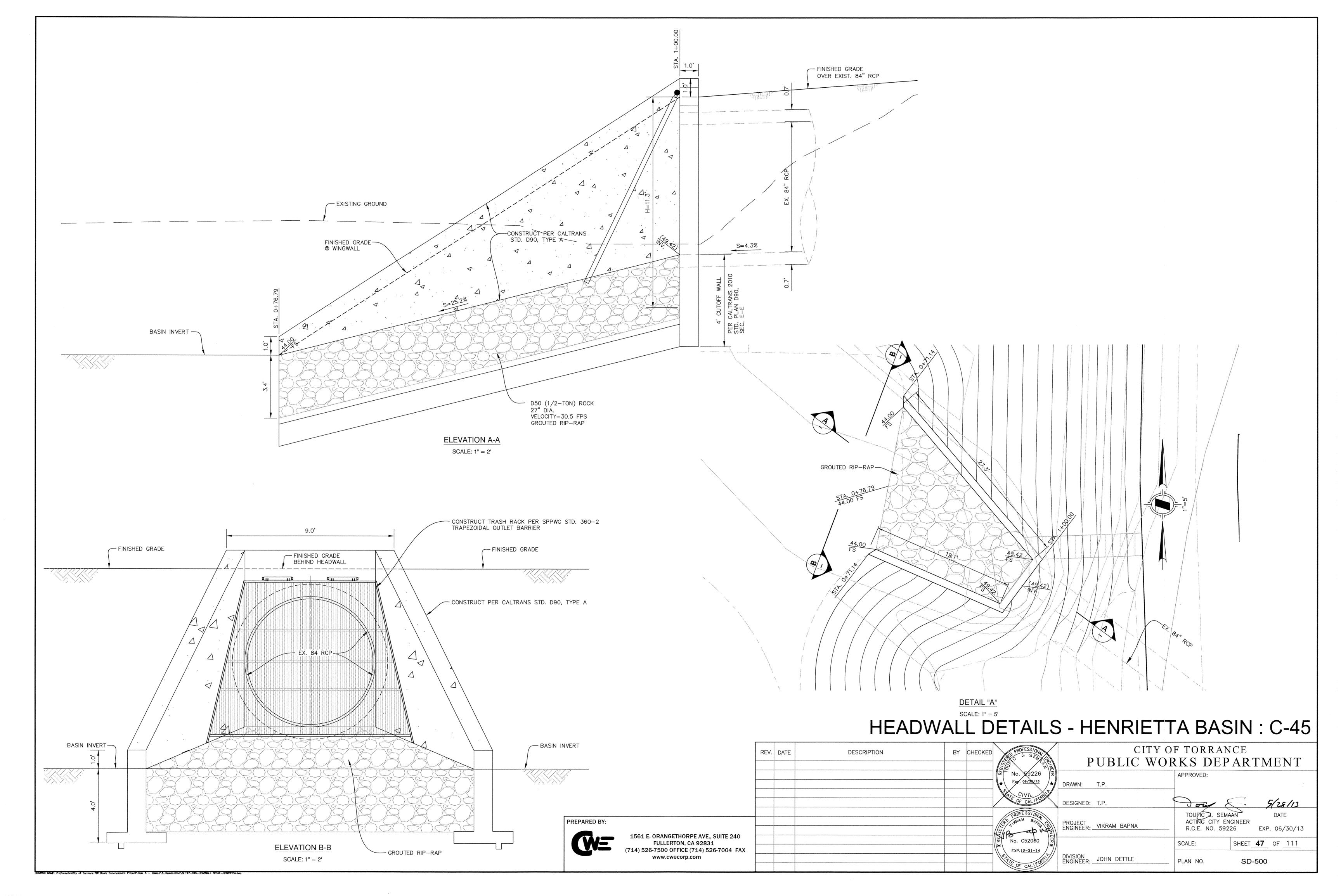
SECTION B-B SCALE: N.T.S.

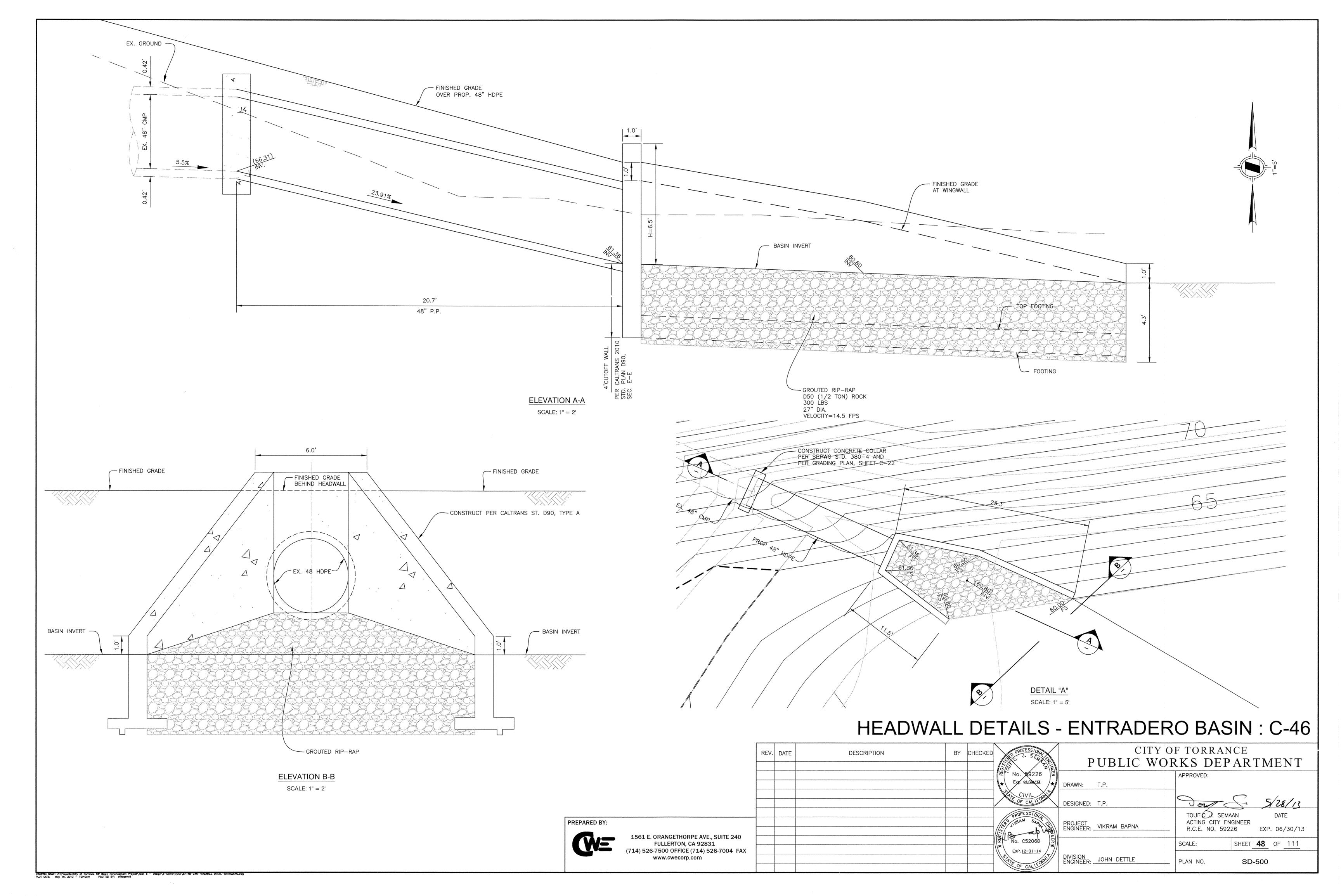
AMIE BASIN FORCE MAIN CONNECTION DETAIL: C-42

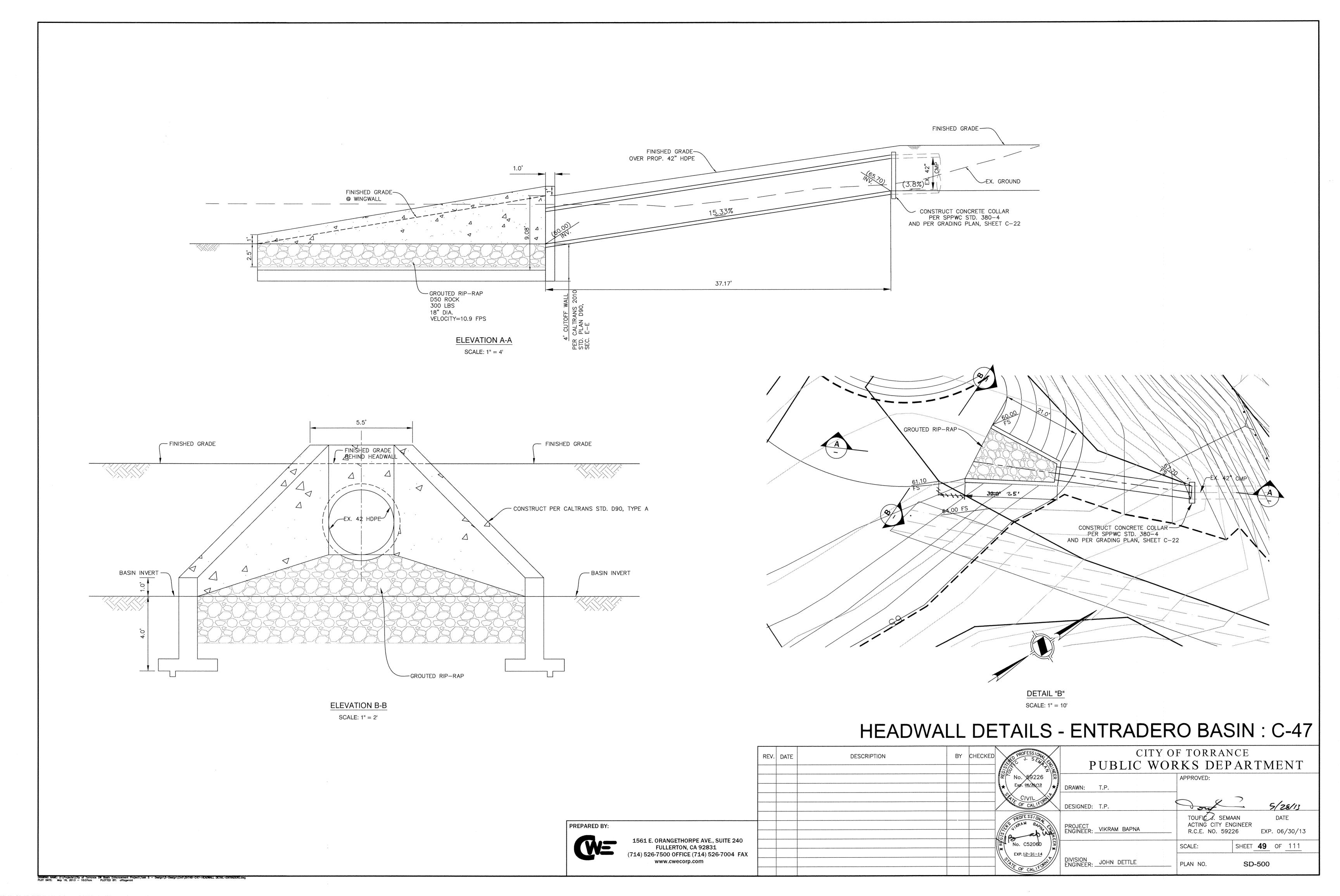
REV.	DATE	DESCRIPTION	BY CHECKED	PROFESS/ONAL ENGINEERS	CITY OF TORRANCE PUBLIC WORKS DEPARTMENT
				No. 59226	APPROVED:
				CIVIL	DRAWN: ALF
				PROFESS/ONAL	DESIGNED: C.P. 5/28/13 TOUFIC J. SEMAAN DATE
				DE PRAM BASTE	PROJECT ACTING CITY ENGINEER R.C.E. NO. 59226 EXP. 06/30/13
				No. C52060 # EXP.12-31-14	SCALE: AS SHOWN SHEET 44, OF 111
				OF CALIFORNIA	DIVISION ENGINEER: JOHN DETTLE PLAN NO. SD - 500

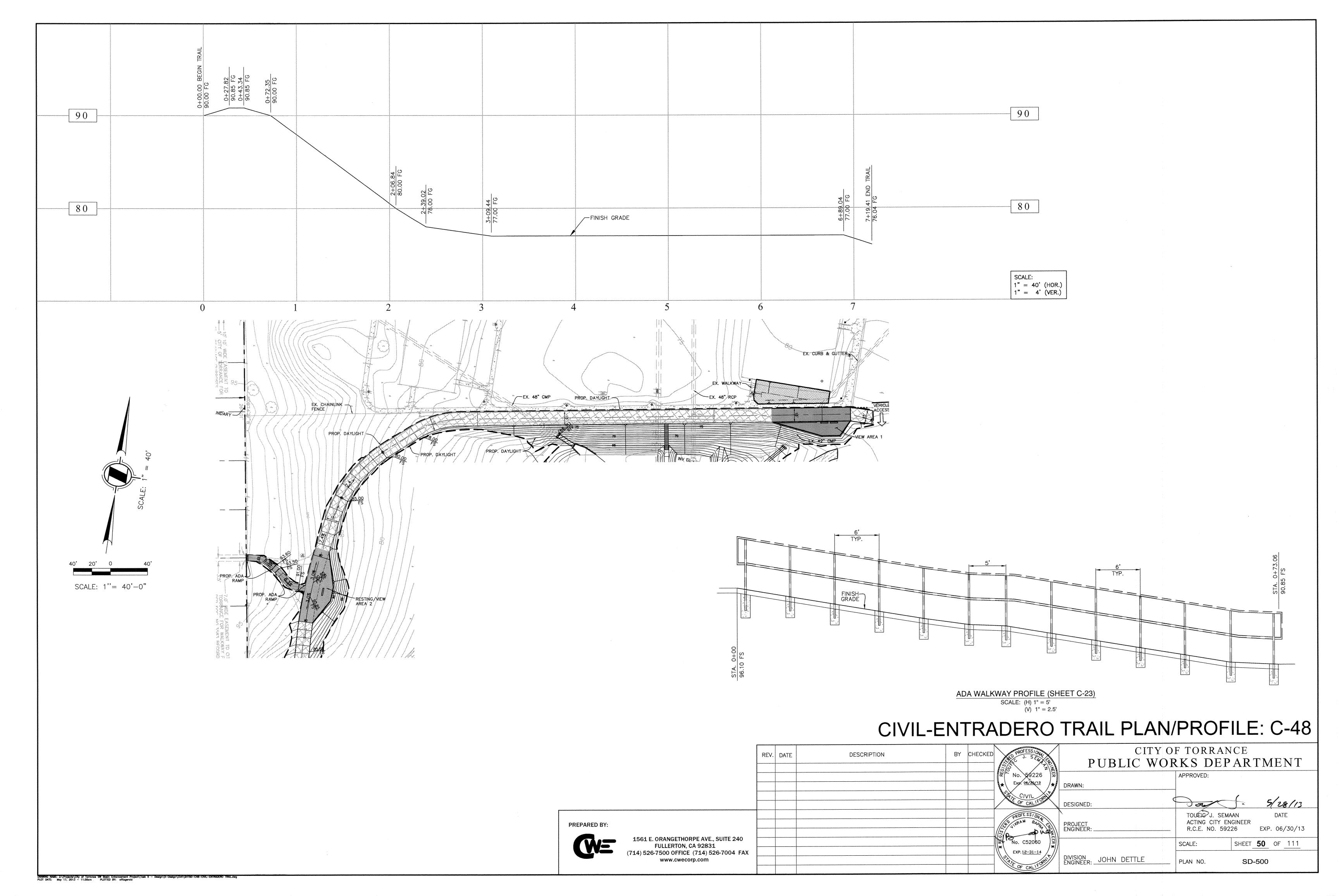


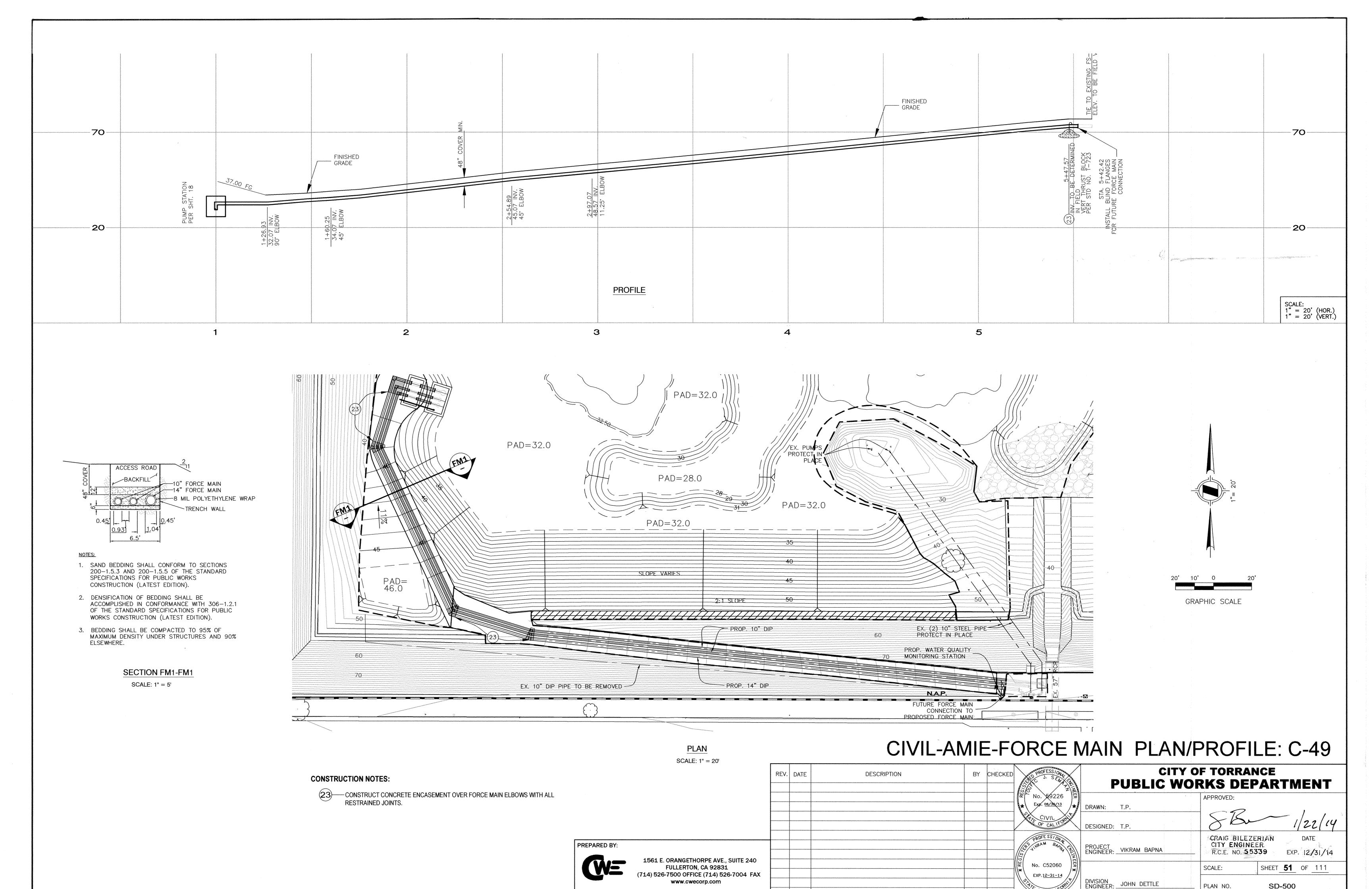








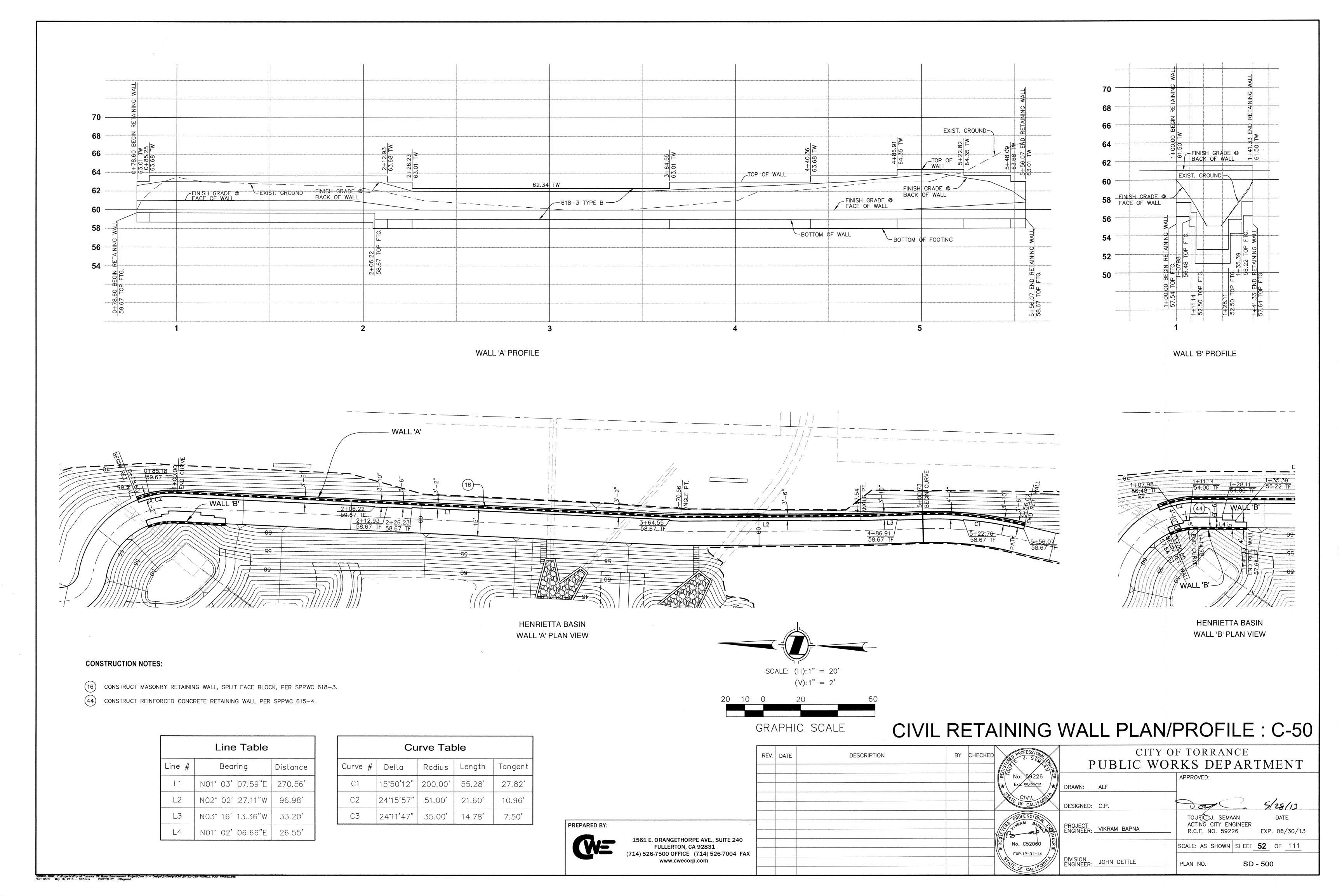


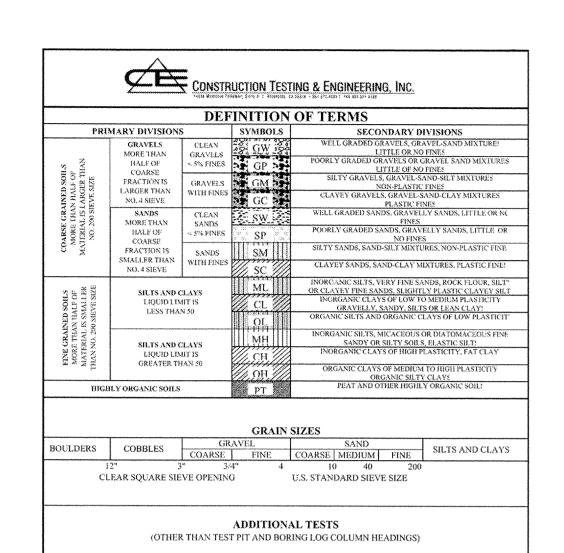


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SD-500

PLAN NO.





HA- Hydrometer Analysis

AL- Atterberg Limits

CP- Collapse Potential

HC-Hydrocollapse

REM- Remolded

RV- R-Value

CN- Consolidation

WA- Wash Analysis

MD- Moisture/Density

SC- Swell Compression

OI- Organic Impurities

M- Moisture

UC- Unconfined Compression

GS- Grain Size Distribution

CHM- Sulfate and Chloride

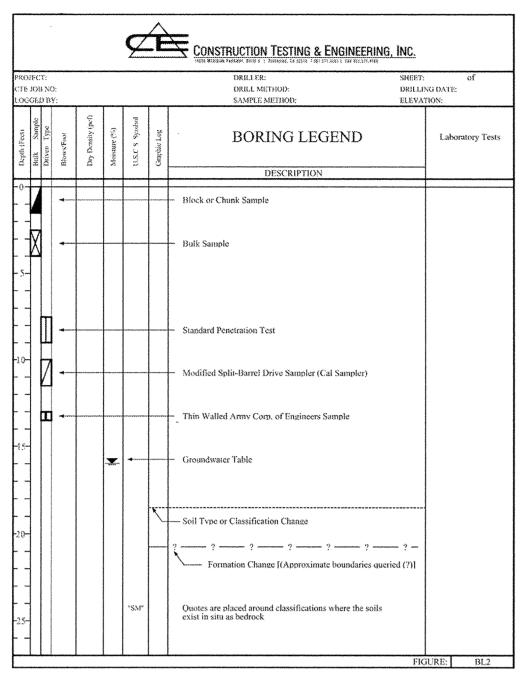
Content, pH, Resistivity

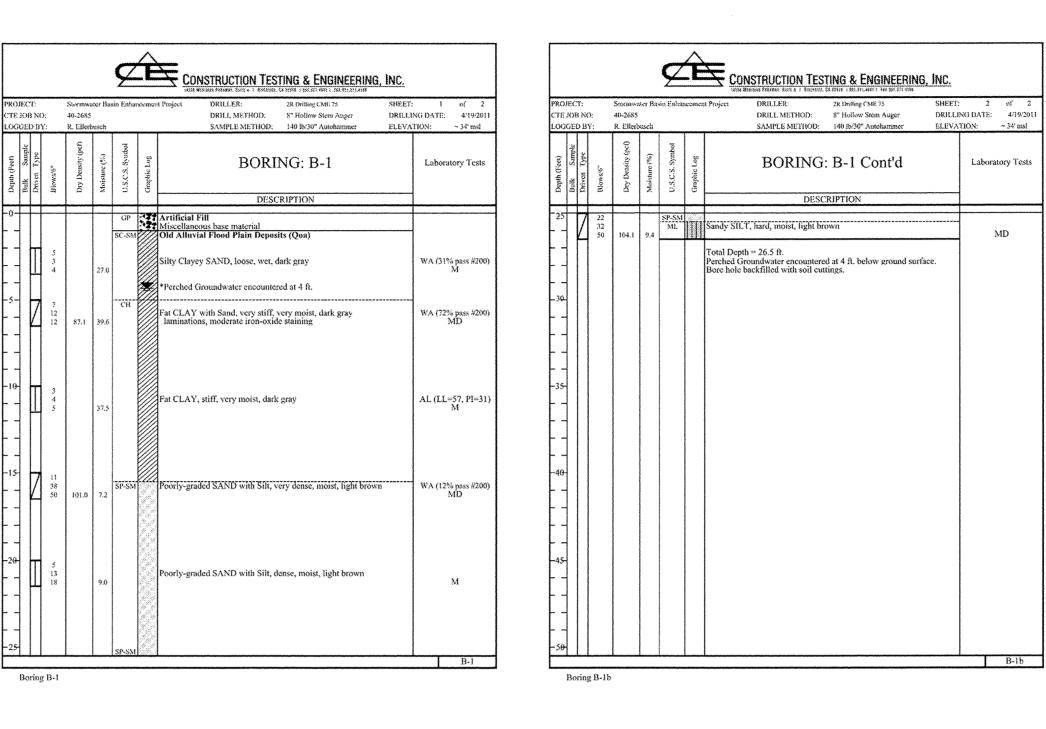
SE- Sand Equivalent

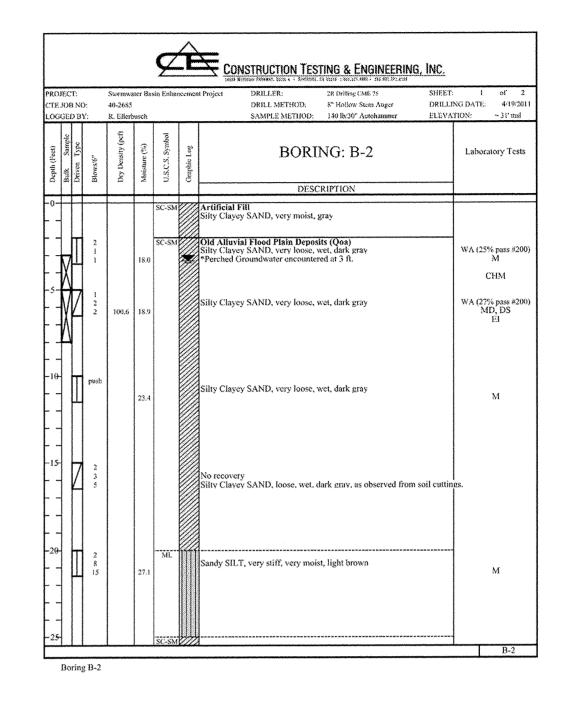
EI- Expansion Index

COR - Corrosivity

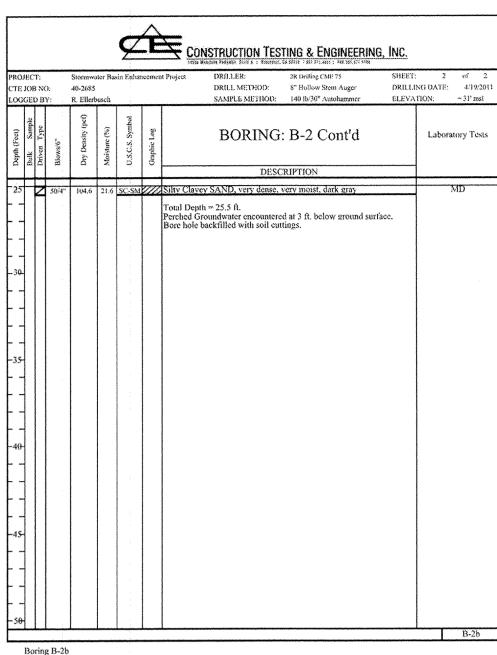
SD- Sample Disturbed



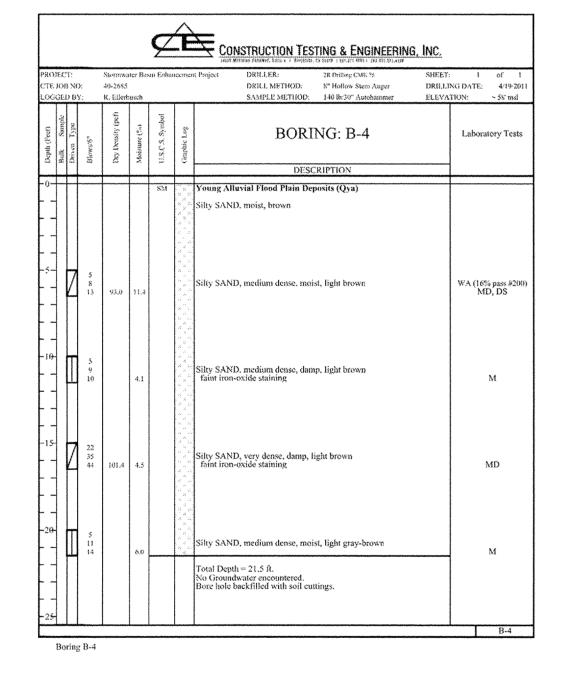


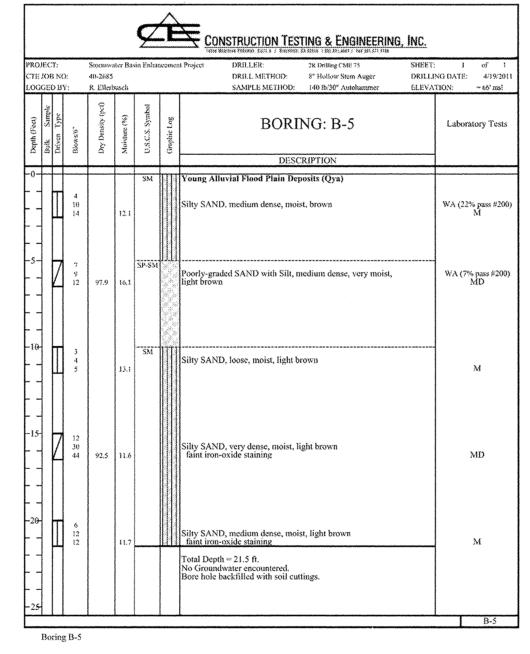


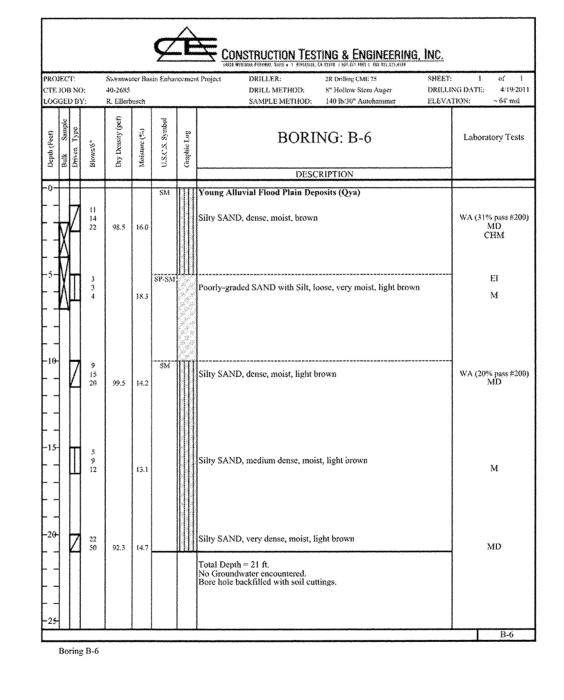
Laboratory Tests

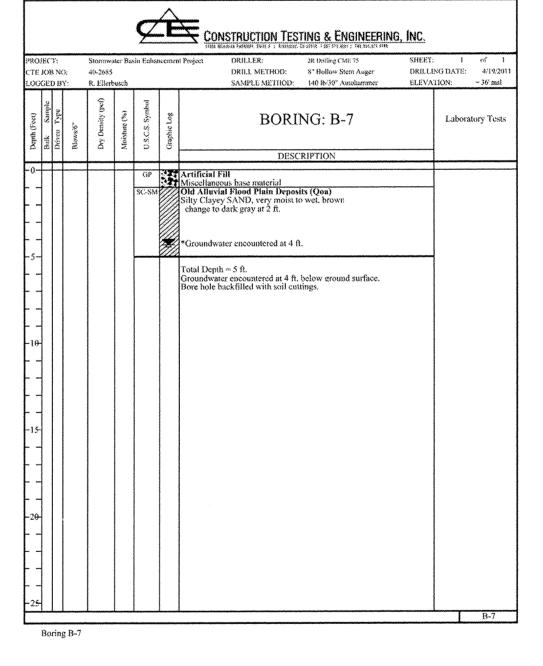


PRO. CTE LOG	OB	I NO		Stormwa 40-2685 R. Elleri		sin Enha	o:emer	ojcer DRILLER: 2R Dolling CME 75 DRILL METHOD: 8" Hollow Stem Auger SAMPLE METHOD: 140 Ib/30" Autobammer	SHEET: I of I DRILLING DATE: 4/39/2011 ELEVATION: ~ 52° ms1
Depth (Feet)		Driven Type	Blows'6"	Dry Density (pct)	Moisture (%)	U.S.C.S. Symbol	Graptuc Log	BORING: B-3	Laboratory Tests
-0-	Н	Н		-		-	_	DESCRIPTION	
		I	3 4 5		11.9	SP-SM		oung Alluvial Flood Plain Deposits (Qya) orly-graded SAND with Silt, loose, moist, light brown	WA (10% pass #200)
5-	X	Z	8 11 18	100.9	19.8	SM		ity SAND, medium dense, very moist, light brown	CHM WA (16% pass #200) MD E1
10-			6 10 17		9.7	SP-SM		orly-graded SAND with Silt, medium dense, moist, ht brown	м
-15-		Z	23 50	93.7	10.8	SM		ity SAND, very dense, moist, light brown int iron-oxide staining	MD
-20-			8 13 18		12.0	a make makepin and mission or a described mission of the described miss		ty SAND, dense, moist, light brown inti iron-oxide staining tal Depth = 21.5 ft. of croundwater encountered, we hole backfilled with soil cuttings.	М





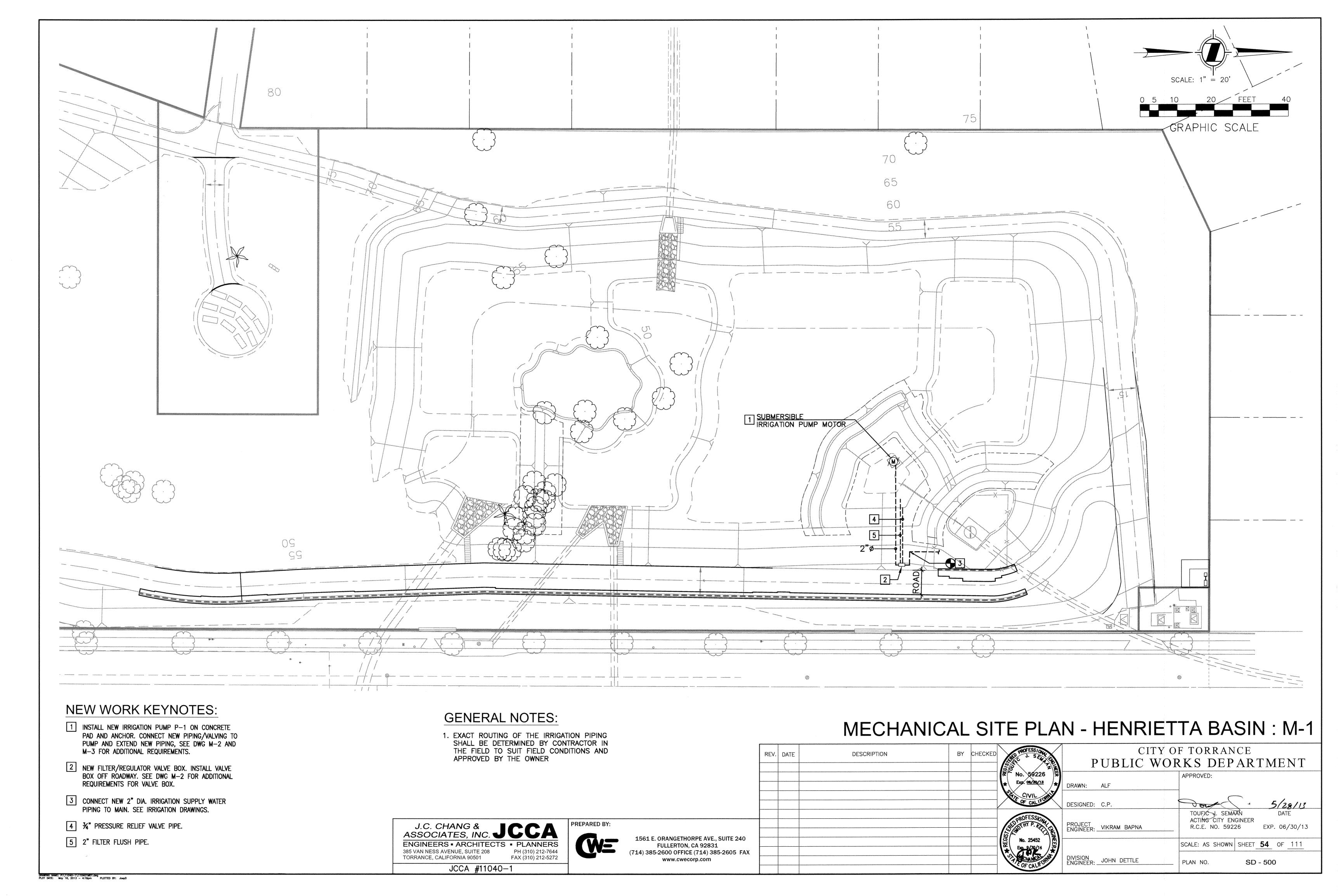


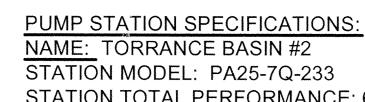


TE.J	CT: OB N ED B		Stormwa 40-2685 R. Ellerb		sm Enha	icemer	DRILLER: 2R Drilling CM6 75	SHEET: I DRULING DATE: ELEVATION:	of I 4/19·20) ~ 35' msi
=	Bulk Sampie Driven Type	Blows'6"	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: B-8	Laborate	ory Test
0	+				621.00	7777			
					SC-SM		old Alluvial Flood Plain Deposits (Qoa) ilty Clayey SAND, very moist to wet, brown change to dark gray at 2 ft. Groundwater encountered at 3 ft.		
5-						7//	oroundwater encountered at 3 ft. otal Depth = 4 ft. broundwater encountered at 4 ft. below ground surface. one hole backfilled with soil cuttings.		
1									
10									
1					Annual Advisory or African Company				
15					alformación de el Adoptionne de				
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BORING LOGS-AMIE, HENRIETTA AND ENTRADERO BASIN: B-1

	REV.	DATE	DESCRIPTION	BY	CHECKED	PROFESSIONAL DE LA SENA PER LA		F TORRANCE RKS DEPARTMENT
						5 00000		APPROVED:
						Exp. 06/30/13	DRAWN: ALF	
						OF CALIFORN	DESIGNED: C.P.	Joy S. 5/28/13
PREPARED BY:						PROFESSIONAL	DDO 1507	TOUFIC J. SEMAAN DATE ACTING CITY ENGINEER
						SP - BY	PROJECT ENGINEER: VIKRAM BAPNA	R.C.E. NO. 59226 EXP. 06/30/13
1561 E. ORANGETHORPE AVE., SUITE 240 FULLERTON, CA 92831 (714) 526-7500 OFFICE (714) 526-7004 FAX						No. C52060		SCALE: AS SHOWN SHEET 53 OF 111
(714) 526-7500 OFFICE (714) 526-7004 FAX www.cwecorp.com						EXP. 12-31-14 OF CALLEGERAL	DIVISION ENGINEER: JOHN DETTLE	PLAN NO. SD - 500





STATION MODEL. PA25-7Q-253
STATION TOTAL PERFORMANCE: 60 GPM @ 90 PSI
PUMP HORSEPOWER:

PUMP NO.1 7.5HP CHECK VALVE SIZE:

PUMP NO.1 2"

ISOLATION VALVE SIZE:

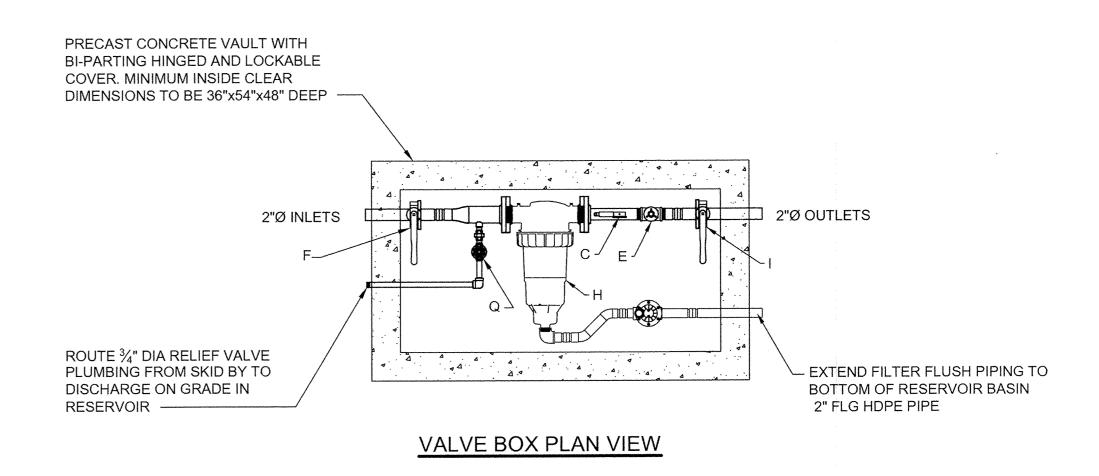
STATION DISCHARGE ISOLATION VALVE SIZE: 2"
DISCHARGE MANIFOLD SIZE: 2"

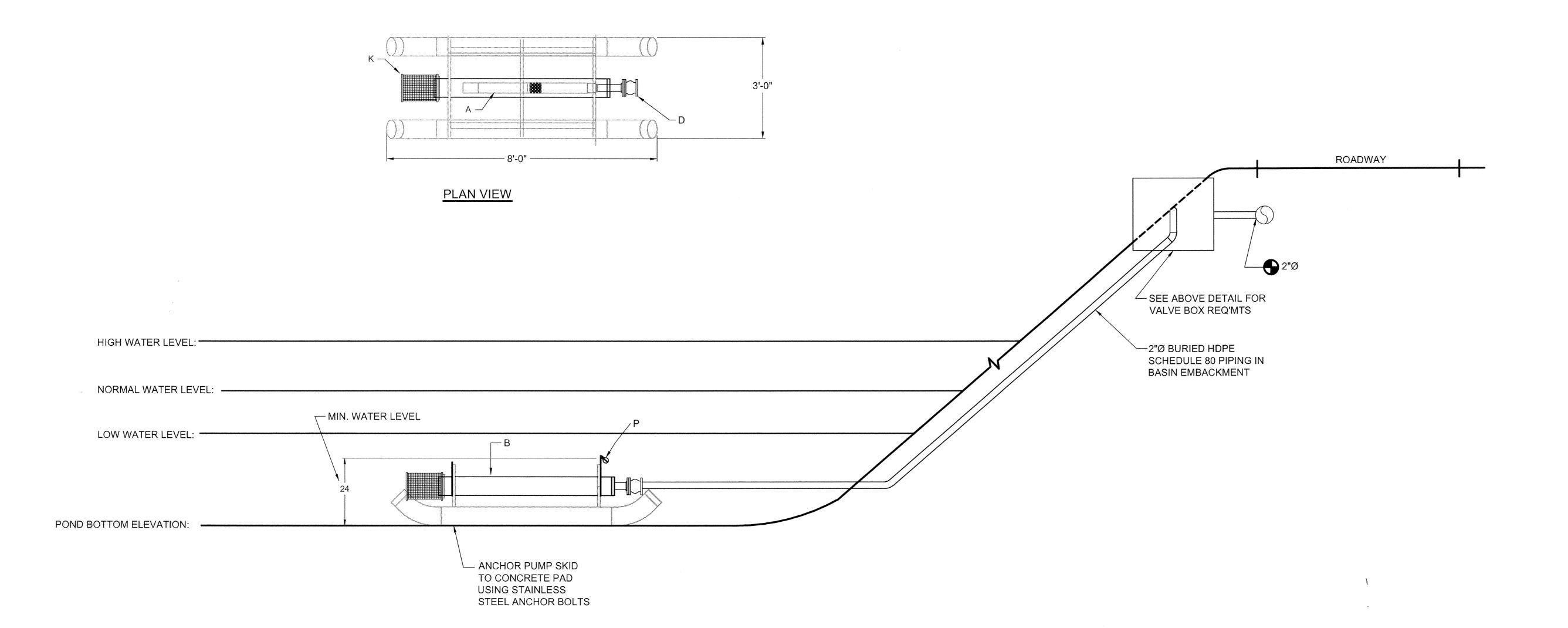
STATION DISCONNECT: 60 AMP

POWER REQUIREMENTS: 230 V, 60 HZ, 3 PHZ, 32 FLA

STATION COMPONENTS:

- A 7.5HP SUBMERSIBLE PUMP AND MOTOR
- B HDPE PUMP SLED W/ MUD PLATE
- C PRESSURE TRANSDUCER WITH GAUGE
- D CHECK VALVE
- E FLOW SENSOR
- F 2" FULL PORTED BALL VALVE
- G NOT USED
- H V200 FILTER WITH 100 MICRON SCREEN
- I STATION DISCHARGE ISOLATION VALVE, 2"FULL PORTED BALL VALVE
- J NOT USED
- K INTAKE SCREEN
- L NOT USED
- M NOT USED
- N NOT USED
- O NOT USED
 P LEVEL FLOAT SWITCH
- Q PRESSURE RELIEF VALVE





IRRIGATION PUMP/PIPING SYSTEM - HENRIETTA BASIN: M-2

/ / /		ATTOM TOWN /T II		OIOIL		TADACIN . IVI Z
REV.	DATE	DESCRIPTION	BY CHECKED	ED PROFESSIONAL	CITY O	F TORRANCE
				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PUBLIC WOR	RKS DEPARTMENT
				No. 59226		APPROVED:
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				TOP CALIFORNIA	DESIGNED: C.P.	TOUPIC J. SEMAAN DATE
				SO PROFESSIONA	PROJECT	ACTING CITY ENGINEER
				15 The State of th	PROJECT ENGINEER: VIKRAM BAPNA	R.C.E. NO. 59226 EXP. 06/30/13
				No. 25452 KEE		SCALE: AS SHOWN SHEET 55 OF 111
				CHANCE OF CALIFORNIA	DIVISION JOHN DETTLE	PLAN NO. SD - 500
				OF CAL!		

J.C. CHANG & JCCA
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ENGINEERS • ARCHITECTS • PLANNERS
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TORRANCE, CALIFORNIA 90501 PH (310) 212-7644
FAX (310) 212-5272

JCCA #11040-1

(714) 38

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SECTION 1: GENERAL

- 1.0 THE IRRIGATION PUMP/PIPING SYSTEM SHALL BE MANUFACTURED BY "JOHN DEERE GREEN TECH" OR EQUAL.
- 1.1 THE PUMP STATION PERFORMANCE AT CONNECTION LIMITS SHALL BE AS NOTED IN THE TECHNICAL SPECIFICATIONS. THE CAPACITY, DISCHARGE PRESSURE, AND DISCHARGE PIPE DIMENSIONS SHALL BE PER THE TECHNICAL SPECIFICATIONS. THE PUMP SHALL OPERATE AT NO MORE THAN 3600 RPM. THE POWER SUPPLY TO THE STATION SHALL BE AS SHOWN ON THE ELECTRICAL DRAWINGS.
- 1.2 THE STATION SHALL BE COMPLETELY WIRED, PIPED, DYNAMICALLY FLOW AND PRESSURE TESTED PRIOR TO SHIPMENT.
- 1.3 OPERATIONAL SEQUENCE: THE PUMP SHALL ACTIVATE AUTOMATICALLY UPON A DROP IN MANIFOLD PRESSURE TO AN ADJUSTABLE SET POINT. OPERATION SHALL BE MAINTAINED AT AN ADJUSTABLE MINIMUM FLOW. THE PUMP SHALL BE AUTOMATICALLY RETIRED WHEN SYSTEM FLOW DROPS BELOW THE MINIMUM ADJUSTABLE SET POINT AND THE PRESSURE SET POINT HAS BEEN MET FOR AN ADJUSTABLE TIME DELAY.

SECTION 2: PUMP AND MOTOR

2.1 PLIME

PUMP SHALL BE SUBMERSIBLE TYPE. BOWL ASSEMBLY INCLUDING SUCTION CASE, INTERMEDIATE BOWLS AND DISCHARGE BOWLS SHALL BE OF CAST IRON. THE IMPELLERS SHALL BE OF BRONZE, STATICALLY BALANCED. EACH PUMP SHAFT IS TO BE TURNED, GROUND AND POLISHED STAINLESS STEEL HAVING A CHROMIUM CONTENT OF NOT LESS THAN 12%. IT SHALL BE SUPPORTED BY BEARINGS ABOVE AND BELOW EACH IMPELLER. THE SIZE OF EACH SHAFT SHALL BE APPROPRIATE TO TRANSMIT THE HORSEPOWER REQUIRED BY THE PUMP.

THE PUMP SHALL HAVE A CORROSIVE RESISTANT BASKET TYPE STRAINER WITH AN AREA NO LARGER THAN 1/4".

2.2 MOTOR SUBMERSIBLE

MOTOR SHALL BE SUBMERSIBLE TYPE AND MEET APPLICABLE NEMA STANDARDS. THE MOTOR SHALL BE OF CORROSION RESISTANT CONSTRUCTION, 316 STAINLESS STEEL SHELL, SPLINED STAINLESS STEEL SHAFT, CAST IRON END BELLS, HERMETICALLY SEALED WINDINGS, KINGSBURY—TYPE THRUST BEARINGS, PRESSURE EQUALIZING DIAPHRAGM, REMOVABLE "WATER—BLOC" LEAD CONNECTOR AND U.L. 778 RECOGNIZED

SECTION 3: PIPING MANIFOLD, VALVES, GAUGES AND OTHER MECHANICAL EQUIPMENT

3.1 FABRICATED PIPING

ALL STEEL FABRICATED PIPING SHALL CONFORM TO ASTM SPECIFICATIONS A53 FOR GRADE B WELDED OR SEAMLESS SCHEDULE 40 PIPE. ALL WELDED FLANGES SHALL BE FORGED STEEL, SLIP_ON OR WELD NECK TYPE. ALL WELDED FITTINGS SHALL BE SEAMLESS, ASTM SPECIFICATION A234, WITH PRESSURE RATING NOT LESS THAN 150 PSI.

3.2 CHECK VALVE

PUMP CHECK VALVE SHALL BE OF THE SILENT OPERATING TYPE THAT BEGINS TO CLOSE AS FORWARD VELOCITY DIMINISHES AND BE FULLY CLOSED AT ZERO VELOCITY PREVENTING FLOW REVERSAL. VALVE BODIES SHALL BE CAST FROM ASTM—126C CAST—IRON OR BETTER AND SHALL BE FREE FROM BLOW HOLES, SAND HOLES, AND OTHER IMPURITIES. THE VALVE DESIGN SHALL INCORPORATE A CENTER GUIDED, SPRING LOADED POPPET, GUIDED AT OPPOSITE ENDS AND HAVING A SHORT LINEAR STROKE THAT GENERATES A FLOW AREA EQUAL TO THE PIPE DIAMETER. INTERNALS SHALL BE MACHINED BRONZE DISC, SEAT, AND STEM GUIDE. VALVES SHALL BE SIZED TO PERMIT FULL PUMP CAPACITY TO DISCHARGE THROUGH THEM WITHOUT EXCEEDING A PRESSURE DROP OF 2.5 PSI. VALVES 4" AND SMALLER TO BE PRESSURE RATED FOR 250 PSI.

3.3 STATION DISCHARGE ISOLATION VALVE

ISOLATION VALVES SHALL BE BUTTERFLY TYPE WITH TEN POSITION LEVER FOR SIZES 4" AND SMALLER AND GEAR OPERATORS FOR SIZES ABOVE 4". ALL SHALL BE RATED AT 200 PSI WOG WORKING PRESSURE. TRIM SHALL INCLUDE STAINLESS STEEL STEM, BRONZE OR NICKEL COATED IRON, STREAMLINED DISC, AND FULL FACED RESILIENT SEAT DESIGNED TO ELIMINATE NEED FOR FLANGE GASKETS.

3.4 DRAIN VALVES

DRAINS ARE TO BE PROVIDED FROM ANY POSSIBLE LOW POINT IN THE MANIFOLD AND ARE TO CONSIST OF 1/4" BRASS PETCOCKS.

3.5 PRESSURE GAUGES

A COMPOUND PRESSURE GAUGE SHALL BE LOCATED ON THE PUMP SUCTION AND ON THE DISCHARGE MANIFOLD FOR EASY READING OF THE SUCTION VACUUM AND DISCHARGE PRESSURE. PRESSURE GAUGES SHALL BE 304 STAINLESS STEEL CASE AND BEZEL CONSTRUCTION. GAUGES SHALL BE 2-1/2" DIAMETER, LIQUID FILLED. PRESSURE SENSING CONNECTION SHALL BE 1/4" NPT LOWER GAUGE CONNECTION.

3.6 PRESSURE TRANSDUCER

A SOLID STATE PRESSURE TRANSDUCER SHALL PROVIDE A NOISE FREE, LINEAR OUTPUT PROPORTIONAL TO DISCHARGE PRESSURE. TRANSDUCER SHALL BE SOLID—STATE, STRAIN GAUGE TYPE WITH INTEGRAL VOLTAGE REGULATION AND OUTPUT ACCURACY NOT LESS THAN 0.25%. TRANSDUCER SHALL BE CONSTRUCTED OF STAINLESS STEEL AND RATED FOR THE PUMP STATION DISCHARGE PRESSURE CALLED OUT IN THE TECHNICAL SPECIFICATIONS. PROVIDE POWER AND CONTROL WIRING FROM TRANSDUCER TO PUMP

SECTION 4: ELECTRICAL CONTROLS

4.1 GENERAL

SEE ELECTRICAL DRAWINGS FOR POWER AND CONTROL REQUIREMENTS.

4.2 PROGRAMMABLE LOGIC CONTROLLER (INSTALLED IN MCC)

THE PUMP SEQUENCE CONTROLLER SHALL BE AN INDUSTRIAL GRADE PLC WITH DIAGNOSTIC LED FOR MONITORING OF DISCRETE INPUTS AND OUTPUTS. NOT LESS THAN TWO ADDITIONAL ANALOG INPUTS AND OUTPUTS SHALL BE STANDARD FOR MONITORING AND CONTROL PURPOSES. THE PLC SHALL CONTAIN TWO COMMUNICATION PORTS FOR MONITORING AND PROGRAMMING PURPOSES. THE PLC SHALL CONTAIN AN EEPROM, BATTERY BACKED RAM AND NON VOLATILE MEMORY FOR STORAGE OF CRITICAL CONFIGURATION DATA.

4.3 OPERATOR INTERFACE

THE OPERATOR INTERFACE SHALL DISPLAY PUMP SYSTEM RUNNING STATUS INCLUDING TIMER STATUS AND ALARM STATUS ON A TWO-LINE DISPLAY. FOR SECURITY, THE OPERATOR INTERFACE SHALL HAVE PASSWORD PROTECTION TO PROHIBIT UNAUTHORIZED ACCESS TO CERTAIN PARAMETERS. THE INTERFACE SHALL ALSO HAVE A BUILT-IN DIAGNOSTICS FUNCTION FOR THE STATUS OF THE PROGRAMMABLE CONTROLLER. THE OPERATOR INTERFACE WILL BE ABLE TO SHOW CURRENT GPM AND PSI IF FLOW AND PRESSURE SENSOR OPTIONS ARE CALLED OUT FOR IN THE TECHNICAL SPECIFICATION.

4.4 FLOW SENSOR

THE PUMP STATION DISCHARGE MANIFOLD SHALL INCORPORATE AN INSERTION TYPE, PULSE FREQUENCY OUTPUT FLOW SENSOR FOR CONTINUOUS OUTPUT TO THE PUMP STATION CONTROLS. THE FLOW SENSOR OUTPUT PULSE SHALL BE CONDITIONED AND FED DIRECTLY TO THE PLC INTERRUPT INPUT FOR CONVERSION AND DISPLAY IN GALLONS PER MINUTE AND TOTALIZE. FOR ACCURACY AND SECURITY CONSIDERATIONS, CONVERSION TO AN ANALOG SIGNAL PRIOR TO PLC INPUT SHALL NOT BE ACCEPTED. FLOW SENSOR ACCURACY SHALL BE NO LESS THAN 2% FOR FLOW VELOCITIES RANGING FROM 1-30 FEET PER SECOND.

4.5 NATIONAL ELECTRICAL CODE STANDARDS

ELECTRICAL CONTROLS SHALL CONFORM TO NATIONAL ELECTRICAL CODE STANDARDS AND BE U.L. LISTED

4.6 CORROSION INHIBITING MODULES

CORROSION INHIBITING MODULES SHALL BE INSTALLED IN THE MAIN ELECTRICAL CONTROL ENCLOSURE IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

CONTROL ALARMS:

4.7 LOW DISCHARGE PRESSURE SAFETY SHUTDOWN

LOW DISCHARGE PRESSURE IS TO BE SENSED BY THE PUMP STARTING SET POINT. WHEN THE STATION DISCHARGE PRESSURE DECREASES TO THIS POINT AND MAINTAINS A START SIGNAL FOR THE TIME CALLED OUT IN THE TECHNICAL SPECIFICATIONS, THE PUMPS WILL BE DE_ENERGIZED AND REMAIN SO UNTIL THE CIRCUIT IS MANUALLY RESET. THE OPERATOR INTERFACE SHALL ILLUMINATE TO INDICATE A LOW DISCHARGE PRESSURE SHUTDOWN HAS OCCURRED.

4.8 HIGH DISCHARGE PRESSURE SAFETY SHUTDOWN

HIGH DISCHARGE PRESSURE IS TO BE SENSED BY THE PUMP STARTING SET POINT. WHEN THE STATION DISCHARGE PRESSURE INCREASES TO THIS POINT AND MAINTAINS A START SIGNAL FOR THE TIME CALLED OUT IN THE TECHNICAL SPECIFICATIONS, THE PUMPS WILL BE DE_ENERGIZED AND REMAIN SO UNTIL THE CIRCUIT IS MANUALLY RESET. THE OPERATOR INTERFACE SHALL ILLUMINATE TO INDICATE A HIGH DISCHARGE PRESSURE SHUTDOWN HAS OCCURRED.

SECTION 5: MOUNTING BASE, ENCLOSURE DISCHARGE PIPE

5.1 MOUNTING BASE

CONSTRUCTION SHALL INCLUDE A FABRICATED BASE ASSEMBLY TO SUPPORT ALL COMPONENTS DURING SHIPPING AND TO SERVE AS THE INSTALLED MOUNTING BASE. PUMP STATION BASE SHALL BE FORMED FROM A SINGLE SHEET OF 1/4" PLATE RESULTING IN A SEAMLESS, ONE PIECE BASE WITH ROUNDED EDGES AND CORNERS. HEIGHT IS TO BE 3-1/2" INCHES. THE BASE SHALL BE STRATEGICALLY REINFORCED BENEATH AS REQUIRED TO PROVIDE ADDITIONAL SUPPORT AND STRENGTH. THE BASE SHALL BE DRILLED AND TAPPED ALLOWING THE PUMP TO BE SECURED TO THE BASE. THE BASE SHALL BE SHOT BLASTED TO BARE METAL PRIOR TO PAINTING PROCESS.

5.4 HDPE FABRICATED SUBMERSIBLE PUMP SLED

THE PUMP STATION MANUFACTURER WILL FABRICATE A SUBMERSIBLE PUMP SLED FROM HDPE PIPING AND HDPE COMPONENTS. THE SLED SHALL BE DESIGNED FOR EACH SPECIFIC APPLICATION WITH THE PROPER SIZE AND QUANTITY OF PUMP TUBES, CHECK VALVES AND DISCHARGE FITTING. THE SLED SHALL INCLUDE A LOW LEVEL ALARM DEVICE AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS. THE SUBMERSIBLE MOTOR SHALL BE COOLED VIA A SCREENED INLET AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS. THE SLED WILL INCLUDE AS A STANDARD 100' OF STAINLESS STEEL CABLE TO ASSIST IN REMOVAL FROM THE WATER SOURCE.

5.4A HDPE DISCHARGE PIPING

THE DISCHARGE PIPING FROM THE SUBMERSIBLE PUMP SLED TO THE ON—SHORE CONTROL STATION SHALL BE FABRICATED FROM SCHEDULE 80 WELDED JOINTS HIGH DENSITY POLYETHYLENE PIPE AND EQUIPPED WITH FLANGED CONNECTIONS TO SIMPLIFY REMOVAL OR ADJUSTMENT. LENGTH AND DIAMETER WILL BE AS SHOWN ON PLANS OR TECHNICAL SPECIFICATIONS. INTERFACE. INDIVIDUAL PRESSURE REGULATING VALVES SHALL BE BUTTERFLY TYPE WITH ELECTRIC MOTOR GEAR ACTUATION. THE MAXIMUM ALLOWABLE PRESSURE DROP ACROSS THE BUTTERFLY VALVE AT FULL PUMP CAPACITY SHALL NOT EXCEED ONE PSI. THE BUTTERFLY VALVE SHALL BE RATED FOR NOT LESS THAN 285 PSI.

5.13 FILTRATION SYSTEM

THE PUMP STATION SHALL BE EQUIPPED WITH A FILTRATION SYSTEM TO ASSURE A CLEAN WATER SUPPLY TO THE IRRIGATION SYSTEM. THE FILTRATION SHALL CONSIST OF INDIVIDUAL BARRELS CONTAINING REMOVABLE FILTER ELEMENTS. THE NUMBER OF BARRELS, THE SPECIFIC FILTER MODEL NUMBER AND FILTER SCREEN MICRON RATING SHALL BE CALLED OUT IN THE TECHNICAL SPECIFICATION. EACH REMOVABLE FILTER ELEMENT SHALL CONSIST OF A COURSE SCREEN IN SERIES WITH A FINE SCREEN. THE FINE SCREEN SHALL BE FLUSHED PERIODICALLY TO REMOVE ACCUMULATED DEBRIS.

FLUSHING INITIATION SHALL BE A TIMED INTERVAL, USER ADJUSTABLE, AND A PRESSURE DROP ACROSS THE SCREEN, ALSO USER ADJUSTABLE. FLUSHING CONTROL SHALL BE GOVERNED BY THE PUMP STATION PLC. SEPARATE FLUSHING CONTROLS SHALL NOT BE ACCEPTED.

FLUSHING ACTION SHALL BE INITIATED BY AN ELECTRONICALLY ACTUATED SOLENOID VALVE.

OPERATION: WATER SHALL FLOW INTO THE FILTER BODY AND THROUGH THE 316 STAINLESS STEEL FILTERING SCREEN FROM THE INSIDE OUT ALLOWING BLOCKED CONTAMINATES TO ACCUMULATE ON THE INSIDE SURFACE OF THE FILTERING SCREEN. DIFFERENTIAL PRESSURE ACROSS THE FILTERING SCREEN SHALL BE CONTINUOUSLY MONITORED AS THE FILTER CAKE BUILDS ON THE INSIDE OF THE FILTERING SCREEN. THE DIFFERENTIAL PRESSURE ACROSS SCREEN SHALL BE MONITORED USING A PRESSURE TRANSDUCER UPSTREAM AND DOWNSTREAM OF THE FILTER ASSEMBLY. USING A DIFFERENTIAL PRESSURE SWITCH IS NOT ACCEPTABLE. THE PUMP STATION CONTROL LOGIC SHALL HAVE THE CAPABILITY OF GRAPHICALLY TRACKING THE PRESSURE ACROSS THE FILTER FOR TROUBLESHOOTING PURPOSE LOCALLY AT THE PUMP STATION THROUGH THE TOUCH SCREEN OPERATOR INTERFACE DEVICE AND THROUGH THE REMOTE MONITORING AND CONTROL SOFTWARE. WHEN THE DIFFERENTIAL PRESSURE REACHES AN ADJUSTABLE THRESHOLD (RECOMMENDED AT 7 PSI) A FLUSH CYCLE SHALL BE INITIATED BY THE OPENING OF THE ELECTRIC BUTTERFLY VALVE. THE OPENING OF THE FLUSH VALVE DROPS THE PRESSURE INSIDE THE DRIVE CHAMBER ALLOWING FLOW TO REVERSE THROUGH THE SUCTION SCANNER NOZZLES. THE SUCTION SCANNER NOZZLES TRANSFER THIS REDUCED PRESSURE AT THE NOZZLE LOCATION ONTO THE INSIDE OF THE FILTERING SCREEN SURFACE. THIS REDUCED PRESSURE ON THE INSIDE OF THE FILTERING SCREEN CREATES A REVERSED FLOW THROUGH THE FILTERING SCREEN. PULLING THE CONTAINMENTS OFF THE SCREEN, BACK THROUGH THE SUCTION SCANNER NOZZLES AND OUT THE FLUSH VALVE. ONCE THE NOZZLES HAVE TRAVERSED AND CLEANED THE ENTIRE SCREEN SURFACE. THE FLUSH VALVE SHALL CLOSE STOPPING THE FLUSH CYCLE.

THE DRIVE MECHANISM OF THE FILTER SHALL NOT CONSIST OF ELECTRIC MOTOR, OR LIMIT SWITCHES TO RETURN THE DRIVE MECHANISM TO ITS START POSITION. THE DRIVE MECHANISM SHALL ALLOW THE SUCTION SCANNER NOZZLES TO TRAVERSE ACROSS THE SCREEN AND RETURN TO THEIR START POSITION, AND IF REQUIRED, TO CONTINUE THIS CYCLE INDEFINITELY WITHOUT INTERRUPTING THE FLUSH FLOW. A HYDRAULIC MOTOR DIRECTLY ATTACHED TO THE SUCTION SCANNER SHALL DRIVE THE SUCTION SCANNER.

THE FILTER SCREEN ELEMENT SHALL BE 316 STAINLESS STEEL WITH MICRON OPENING SIZE CALLED OUT FOR IN THE TECHNICAL SPECIFICATION. THE FILTER HOUSING AND COVER SHALL BE MANUFACTURED FROM 316 STAINLESS STEEL AND SHALL BE MANUFACTURED TO ASME STANDARDS BUT NOT STAMPED UNLESS CALLED FOR IN THE TECHNICAL SPECIFICATION

SECTION 6: PAINTING (PIPING SYSTEM)

PAINTING OF THE PIPING SYSTEM SHALL CONSIST OF A MULTI_STEP COATING SYSTEM WHICH INCLUDES METAL PREPARATION, RUST INHIBITIVE BAKED EPOXY PRIME COAT, AND A TWO PART ULTRAVIOLET LIGHT INSENSITIVE BAKED POLYURETHANE FINISH HAVING TOTAL DRY FILM THICKNESS OF NOT LESS THAN 5 MILS. PRIME COAT AND FINISH COAT SHALL BE BAKED AT 165 DEGREES FOR NOT LESS THAN 30 MINUTES TO ACHIEVE A HIGH GLOSS, CORROSION RESISTANT FINISH. EXTERIOR PUMP STATION PIPING COMPONENTS SHALL BE PAINTED THE SAME COLOR AS THE STATION.

SECTION 7: TESTING

THE PUMP STATION AND ALL ITS COMPONENT PARTS SHALL UNDERGO A COMPLETE HYDRAULIC AND ELECTRICAL TEST PRIOR TO SHIPMENT FROM THE FACTORY. TESTING SHALL BE DYNAMIC AND INCLUDE OPERATION OVER THE ENTIRE FLOW RANGE OF THE PUMP STATION UNDER SPECIFIED SUCTION AND NET DISCHARGE PRESSURE CONDITIONS. A PLOT CONTAINING ACTUAL FLOW, PRESSURE, KW CONSUMPTION AND MOTOR RPM SHALL BE FURNISHED IF REQUESTED.

SECTION 8: OWNERS MANUAL

THE OWNER'S MANUAL WILL CONTAIN AN AS—BUILT DRAWING OF THE PUMP STATION, MODEL NUMBER AND PART NUMBER OF ALL NORMALLY REPLACEABLE COMPONENTS, AND A TROUBLESHOOTING GUIDE. COMPLETE START UP INSTRUCTIONS SHALL BE PROVIDED BY THE MANUFACTURER IN THE OWNER'S MANUAL.

SECTION 9: WARRANTY

THE MANUFACTURER SHALL WARRANT THE PUMP STATION TO BE FREE OF DEFECTS FOR ONE YEAR FROM DATE OF START UP OR FIFTEEN MONTHS AFTER SHIPMENT, WHICHEVER OCCURS FIRST. FAILURES CAUSED BY LIGHTNING STRIKES, POWER SURGES, VANDALISM, OPERATOR ABUSE, OR ACTS OF GOD ARE EXCLUDED FROM WARRANTY COVERAGE.

END OF SPECIFICATION:

IRRIGATION PUMP/PIPING SYSTEM SPECIFICATION: M-3

REV.	DATE	DESCRIPTION	BY	CHECKED	PROFESSIONAL CONTROL OF THE PROFESSION OF THE PR		F TORRANCE RKS DEPARTMENT
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				<i>y</i>	Exp. 06/30/13	DRAWN: ALF	
				,	OF CALIFORNIA	DESIGNED: C.P.	Jan. 5/28/13
					OROFESS/O4		TOUFIC J. SEMAAN DATE ACTING CITY ENGINEER
					EN THY P. APILLER	PROJECT ENGINEER: VIKRAM BAPNA	R.C.E. NO. 59226 EXP. 06/30/13
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					OF CALIFORNIA	DIVISION ENGINEER: JOHN DETTLE	PLAN NO. SD - 500

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ELECTRICAL SPECIFICATION NOTES:

A. SCOPE

1. FURNISH ALL LABOR. FURNISH AND INSTALL ALL REQUIRED MATERIALS AND EQUIPMENT FOR COMPLETE OPERATING SYSTEMS AS SHOWN AND AS SPECIFIED.

B. CODES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH 2010 CALIFORNIA ELECTRICAL CODE AND REGULATION REQUIREMENTS OF THE COUNTY.

C. PERMITS AND INSPECTIONS CODES

1. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS FOR THE INSTALLATION OF THE ELECTRICAL WORK. DELIVER CERTIFICATES OF INSPECTION AND APPROVAL TO THE OWNER.

D. SITE VISIT

1. CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS THAT WILL AFFECT HIS WORK AND MAKE THE NECESSARY ALLOWANCES IN HIS BID TO COMPENSATE FOR THESE CONDITIONS. BY THE ACT OF SUBMITTING A BID FOR THIS PROJECT, IT IS HEREBY UNDERSTOOD THAT THE CONTRACTOR IS FAMILIAR WITH AND ACCEPTS ALL CONDITIONS AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT SHALL BE CONSIDERED AS VALID. DUE TO FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST.

E. CLEANING PREMISES

1. KEEP JOB SITE FREE FROM RUBBISH AND WASTE MATERIALS. REMOVE SAME FROM SITE ON A DAILY BASIS.

G. COORDINATION

- 1. COORDINATE ALL WORK WITH OTHER TRADES, OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
- 2. CONTRACTOR IS TO OBTAIN AND REFER TO MECHANICAL, PLUMBING, IRRIGATION, AND OTHER DRAWINGS AND PROVIDE ALL CONTROL WIRING, RELAYS, STARTERS, TIME SWITCHES, CONDUITS, ETC. INDICATED THEREON AS BEING PROVIDED UNDER THE ELECTRICAL WORK.
- 3. COORDINATE WITH SCE THE ACTUAL POINT OF CONNECTION AND INCLUDE IN BID THE QUANTITY & SIZE OF CONDUITS REQUIRED.

H. SHOP DRAWINGS

. SHOP DRAWINGS MUST BE STAMPED BY THE CONTRACTOR FOR CONFORMANCE PRIOR TO SUBMITTAL. SUBMIT SIX SETS OF SHOP DRAWINGS FOR REVIEW PRIOR TO PURCHASING.

CONTRACTOR BID

1. CONTRACTOR'S BID SHALL BE BASED ON ALL WORK SHOWN ON THE PLANS AND AS SPECIFIED. ALL PREMIUM, TIME COSTS REQUIRED SHALL BE INCLUDED IN THE BID. ALL WORKS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR. IF CONTRACTOR PROPOSES TO SUBSTITUTE FOR EQUIPMENT SPECIFIED. HE SHALL SUBMIT HIS REQUEST FOR CONSIDERATION TO THE OWNER AND ENGINEER PRIOR TO THE BID WRITING. ALL SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER IN WRITING. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY CHANGES RESULTING FROM HIS PROPOSED SUBSTITUTIONS WHICH AFFECT OTHER PARTS OF HIS OWN WORK OR THE WORK OF OTHER CONTRACTORS.

"AS-BUILT" DRAWINGS

1. CONTRACTOR SHALL KEEP A SET OF PRINTS WHICH SHALL BE CORRECTED DAILY TO SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS AND SPECIFICATIONS. UNDERGROUND RUNS SHALL BE ACCURATELY DIMENSIONED ON THESE PRINTS (REFERENCED TO BUILDING WALLS OR COLUMNS). ADDENDA AND CHANGE ORDERS SHALL ALSO BE INCLUDED ON THESE PRINTS. DELIVER "AS-BUILT" PRINTS TO OWNER PRIOR TO ACCEPTANCE OF THE JOB. "AS-BUILT" PRINTS SHALL BE SIGNED AND DATED BY CONTRACTOR.

K. POWER SHUTDOWN

1. POWER SHUTDOWN REQUIRED FOR THE EXECUTION OF THIS PROJECT

L. CONDUIT

- 1. RIGID METAL CONDUIT SHALL BE USED FOR EXPOSED FEEDERS UNLESS NOTED TO THE CONTRARY.
- 2. RIGID PVC CONDUIT, SCHEDULE 40 SHALL BE USED FOR UNDERGROUND DUCT.
- 3. A GROUND WIRE IS REQUIRED FOR ALL CONDUITS.

CONDUCTORS

DRAWING: NAME: X:\ENG\VPraead\11040-1 Stormwater Basin Enhancement, City of Torran
PLOT DATE: Nov 22, 2013 - 9:27am PLOTTED BY: vpraead

1. COPPER TYPE XHHW-2 CONDUCTORS SHALL BE USED FOR SUBMERSIBLE MOTORS AND LEVEL CONTROL CONNECTION.

GENERAL NOTES:

- 1. UNLESS OTHERWISE NOTED, ALL MATERIALS AND WORK ARE NEW. EXISTING ELECTRICAL SYSTEMS ARE NOT SHOWN, EXCEPT WHERE INTER-FACING IS REQUIRED.
- 2. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED BY UL OR A COUNTY APPROVED THIRD PARTY TESTING FACILITY.
- 3. ALL CABLE/WIRE CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY AND THEY SHALL BE ROUTED TO SUIT ACTUAL FIELD CONDITIONS. EXCEPT WHERE LOCATIONS ARE EXPLICITLY DIMENSIONED ON THE DRAWINGS.
- 4. WHERE THERE IS A CONFLICT BETWEEN THE DRAWINGS AND ANY RELEVANT CODES, THE CODES SHALL GOVERN, EXCEPT WHERE THE DRAWINGS INDICATE A QUALITY LEVEL SUPERIOR TO THAT SPECIFIED BY THE CODES.
- 5. IN EVENT OF CONFLICT OR DISCREPANCY BETWEEN DRAWINGS, BETWEEN SPECIFICATIONS, BETWEEN CONTRACT DOCUMENTS, BETWEEN DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE THE MORE STRINGENT OF THE DRAWINGS, AND SPECIFICATIONS, AND CONTRACT DOCUMENTS FOR THE CONSTRUCTION AND BIDDING PURPOSES.
- 6. PROVIDE IS DEFINED TO MEAN THAT THE CONTRACTOR SHALL FURNISH, INSTALL, ADJUST, TEST AND INTEGRATE INTO A COMPLETE SYSTEM THE ITEM INDICATED, INCLUDING ALL HARDWARE. WIRING. AND MISCELLANEOUS ITEMS AS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM.
- 7. CONTRACTOR SHALL PROVIDE ALL SUPPORTING HARDWARE. ETC. AS REQUIRED TO SUPPORT ALL CONDUIT, CONNECTIONS, ETC. WITHIN THE LIMITS OF THIS CONTRACT.
- 8. INCLUDE ON BID THE PROTECTIVE DEVICE COORDINATION STUDY INCLUDING ARC FLASH LABEL.

ELECTRICAL LEGEND:

DESCRIPTION SYMBOL TRANSFORMER \sim MOLDED CASE CIRCUIT BREAKER 400A, 3-POLE **FUSE** MOTOR STARTER OVERLOAD RELAY 248HP SUBMERSIBLE MOTOR 248HP -0/0-LEVEL SWITCH d TS MANUAL TRANSFER SWITCH -----NORMALLY OPEN CONTACT NORMALLY CLOSED CONTACT VARIABLE FREQUENCY DRIVE (VFD) GROUND ROD

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
С	CONDUIT
CU	COPPER
(E)	EXISTING
G OR GND	GROUND
(N)	NEW
PB-P	WALL MOUNTED PULL BOX FOR POWER
PB-C	WALL MOUNTED PULL BOX FOR CONTROL WIRING
RGS	RIGID GALVANIZED STEEL CONDUIT
TYP	TYPICAL
UPB-P	UNDERGROUND PULL BOX FOR POWER
UPB-C	UNDERGROUND PULL BOX FOR CONTROL WIRING
UNO	UNLESS NOTED OTHERWISE
VD	VOLTAGE DROP
WP	WEATHER PROOF
XFMR	TRANSFORMER
#	NUMBER

DRAWING INDEX

NUMBER	SHEET TITLE
E-0	ELECTRICAL SPECIFICATION, LEGEND, GENERAL NOTES & DRAWING INDEX
E-1	AMIE BASIN - SINGLE LINE DIAGRAM
E-2	AMIE BASIN - ELECTRICAL NEW WORK SITE PLAN
E-3	NOT USED
E-4	NOT USED
E-5	NOT USED
E-6	NOT USED
E-7	NOT USED
E-8	NOT USED
E-8A	AMIE BASIN - ELECTRICAL DETAILS
E-8B	AMIE BASIN - ELECTRICAL DETAILS
E-9	HENRIETTA BASIN - SINGLE LINE NEW WORK DIAGRAM
E-10	HENRIETTA BASIN - ELECTRICAL SITE PLAN
E-11	HENRIETTA BASIN - ELECTRICAL DETAIL
E-12	ENTRADERO PARK - LIGHTING DEMOLITION PLAN
E-13	ENTRADERO PARK - NEW LIGHTING PLAN
E-14	ENTRADERO PARK - LIGHTING PHOTOMETRIC PLAN (FOR REFERENCE ONLY)

EXP. 12/31/14

SD - 500

NOTE TO CONTRACTOR:

CONTRACTOR SHALL RETAIN AT HIS OWN COST A QUALIFIED CONTROL/PLC/VFD PROGRAM SUBCONTRACTOR TO PERFORM FULLY FUNCTIONAL CONTROL SYSTEM DESIGN AND INSTALLATION PER THE SEQUENCES OF OPERATION AND CITY OF TORRANCE REQUIREMENTS. THE CONTROL SYSTEM SHALL BE INTERCONNECTED TO THE EXISTING SCADA TELEMETRY SYSTEM. THE CONTROL SYSTEM SHALL INCLUDE, BUT NOT LIMITED TO, PROGRAMMABLE LOGIC CONTROLLER (PLCI), TIMERS, CONTROL RELAYS, PRESSURE TRANSDUCER AND BACK-UP FLOAT SWITCH (INTERNALLY WEIGHTED NON-MERCURY SPDT), INDICATING LIGHTS, POWER SUPPLY, ETC. TO MONITOR AND CONTROL PUMPS. THE CONTROL SYSTEM SHALL BE MOUNTED IN WEATHERPROOF STAINLESS STEEL ENCLOSURE, COMPLYING WITH UL698A. SUBMIT COMPLETE SET OF SHOP-DRAWINGS FOR APPROVAL PRIOR TO PROCEEDING WITH THE WORK.

ELECTRICAL SPECIFICATION, LEGEND, GENERAL NOTES & DRAWING INDEX : E-0

REV.	DATE	DESCRIPTION	BY	CHECKED	PROFESSIONA BILEZER CH		Y OF TORRANCE ORKS DEPARTMENT			
					No. 55339 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	DRAWN: ALF DESIGNED: C.P.	APPROVED: SBe 1/221			
					ROFESSION	PROJECT ENGINEER: VIKRAM BAPNA	CRAIG BILEZERIAN DATE CITY ENGINEER R.C.E. NO. 55339 EXP. 12/31/14			
					Exp. 6/30/14 Exp. 6/30/14	DIVISION JOHN DETTLE	SCALE: AS SHOWN SHEET 57 OF 111			

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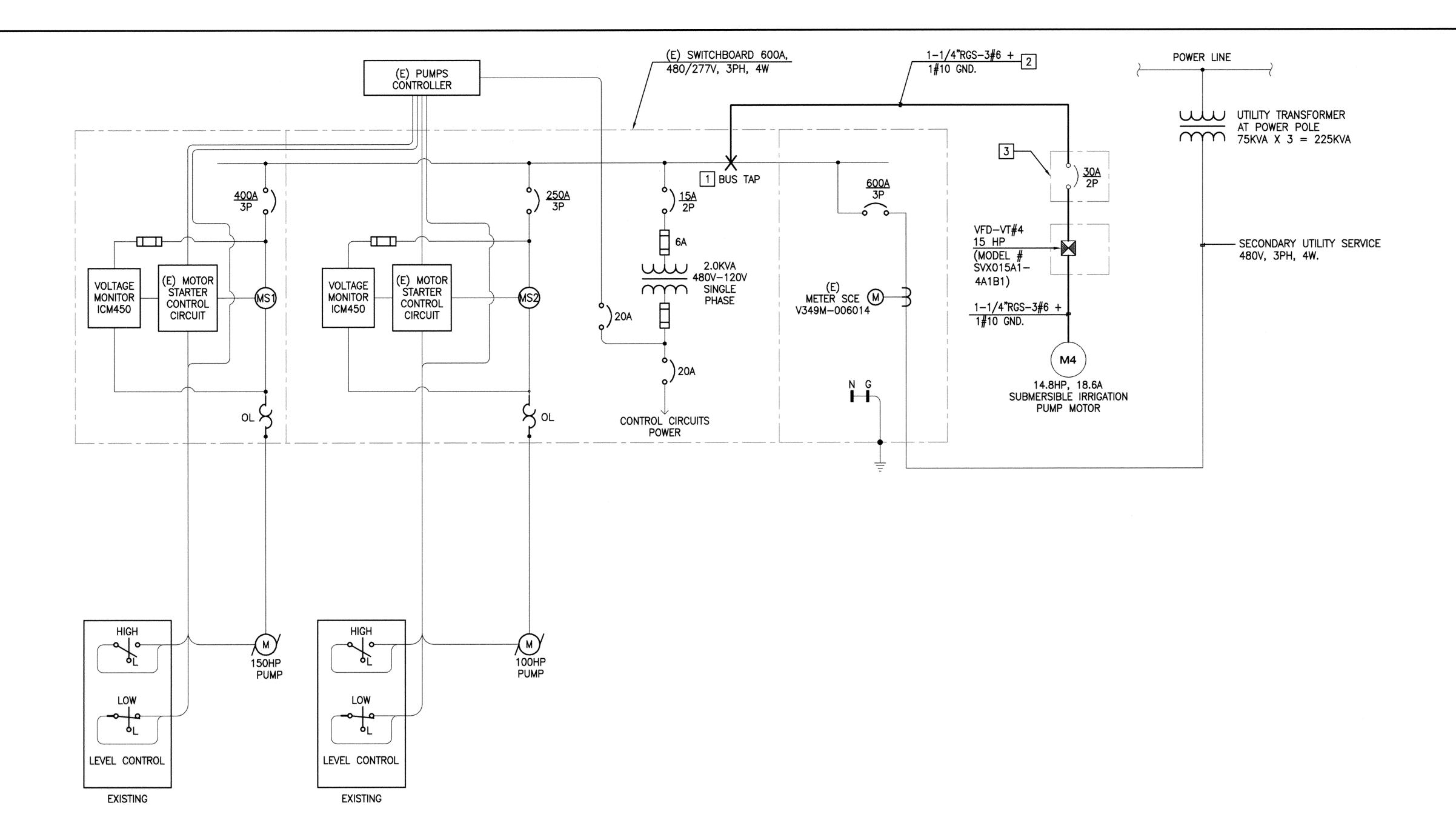
PREPARED BY

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385 VAN NESS AVENUE, SUITE 208

TORRANCE, CALIFORNIA 90501

JCCA #11040-1



AMIE BASIN - SINGLE LINE DIAGRAM

LOAD SUMMARY:

1. 150HP PUMP = 145.0 KVA

2. 100HP PUMP = 98.8 KVA

3. MISCELLANEOUS POWER = 1.5 KVA

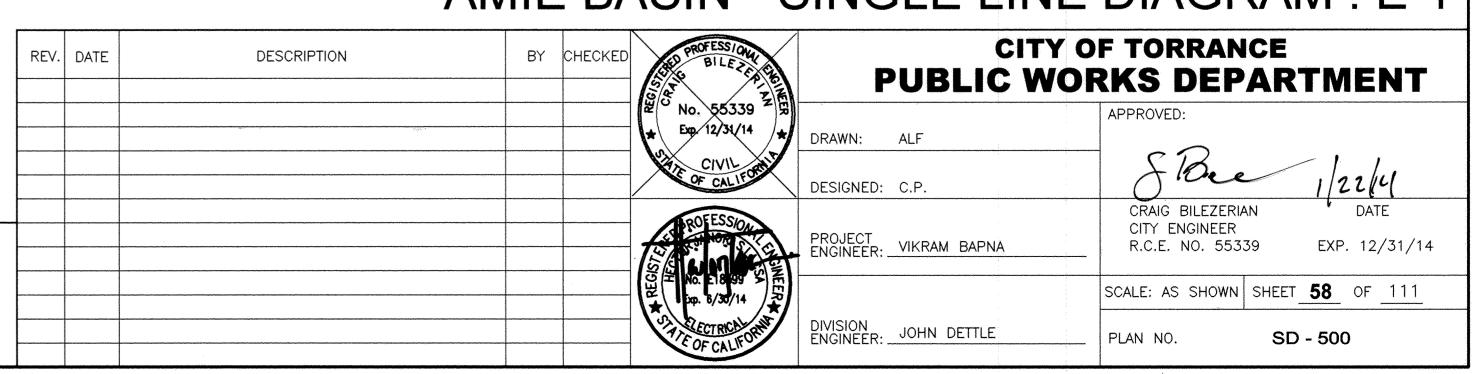
TOTAL 245.3 KVA

OR 295A @ 480, 3PHASE.

SINGLE LINE DIAGRAM KEYNOTES:

- 1 PROVIDE ALL MATERIALS AND HARDWARE REQUIRED FOR TAPPING THE BUS OF EXISTING DISTRIBUTION SYSTEM.
- 2 TAP CONDUCTOR SHALL BE COMPLIANT WITH CEC 240.21.
- PROVIDE 30A, 2—POLE, 480V ENCLOSED CIRCUIT BREAKER, RATED NEMA 3R. LOCATE ENCLOSED CIRCUIT BREAKER SUCH THAT THE DISTANCE FROM TAP LOCATION IS COMPLIANT WITH TAP RULES.

AMIE BASIN - SINGLE LINE DIAGRAM : E-1



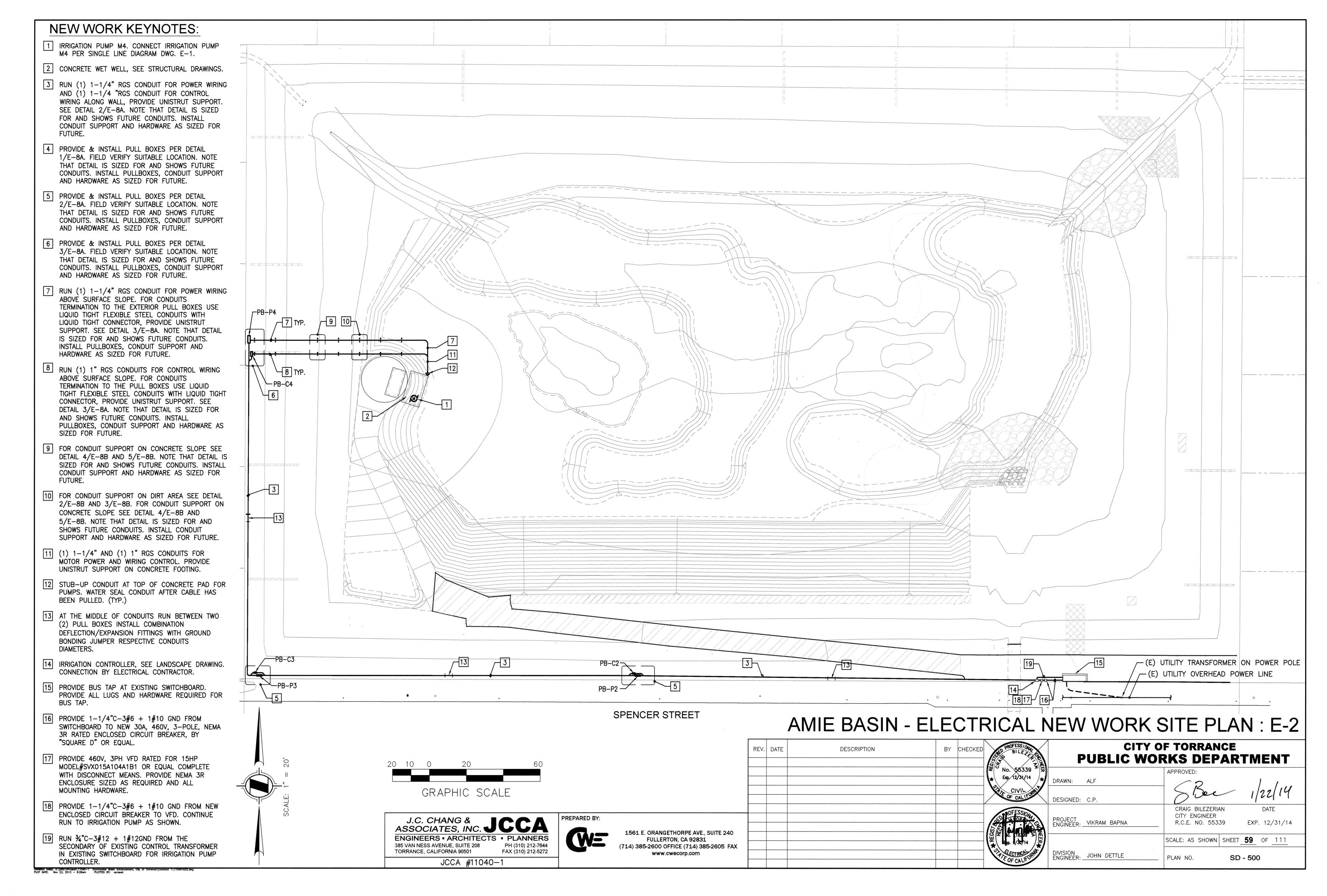
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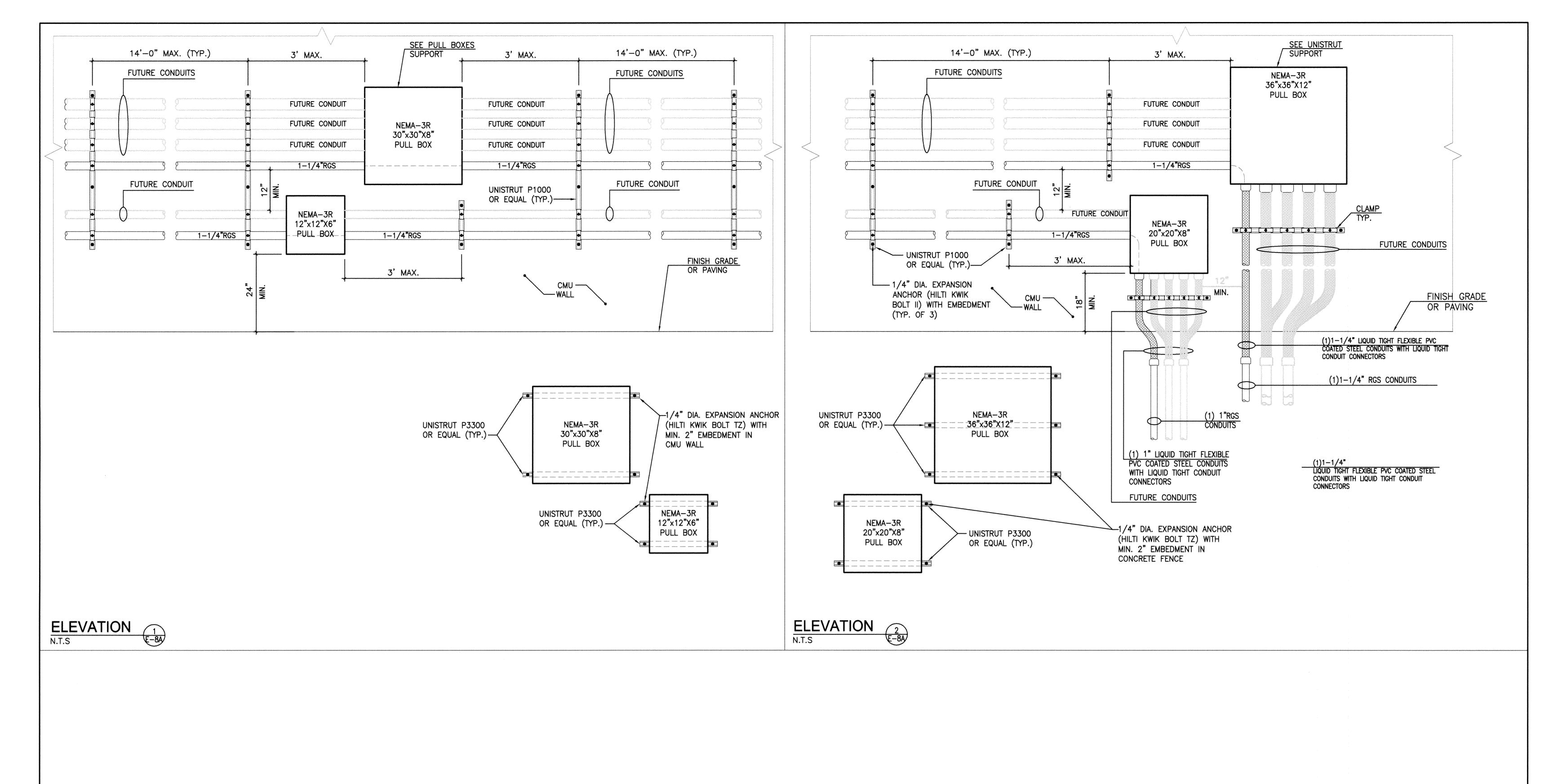
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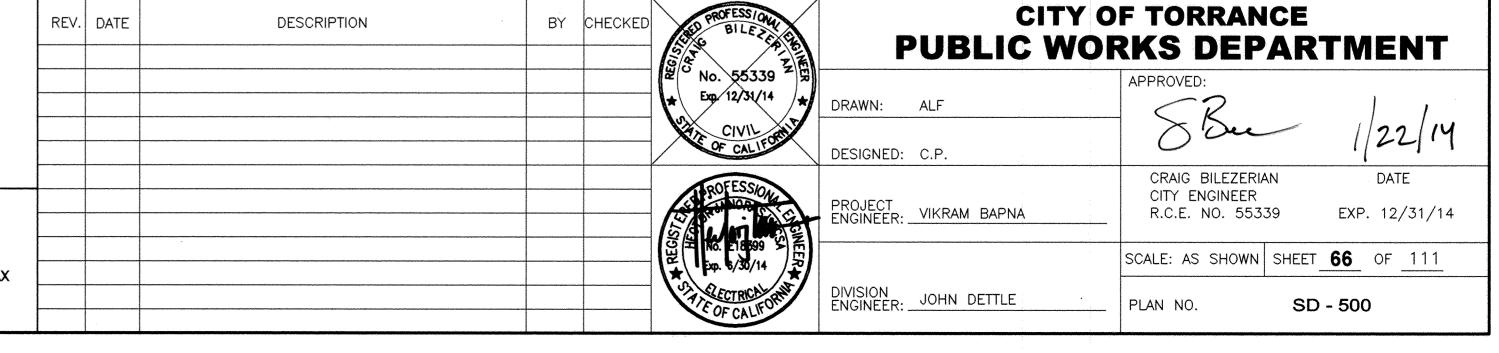
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DRAWING NAME: X:\ENG\VPrasad\11040-1 Stormwater Basin Enhancement, City of Torrance\Contract 1\110401E01.dwg
PLOT DATE: Nov 22, 2013 - 9:29am PLOTTED BY: vprasad





AMIE BASIN - ELECTRICAL DETAILS : E-8A



J.C. CHANG & JCCA

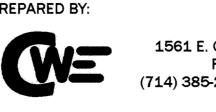
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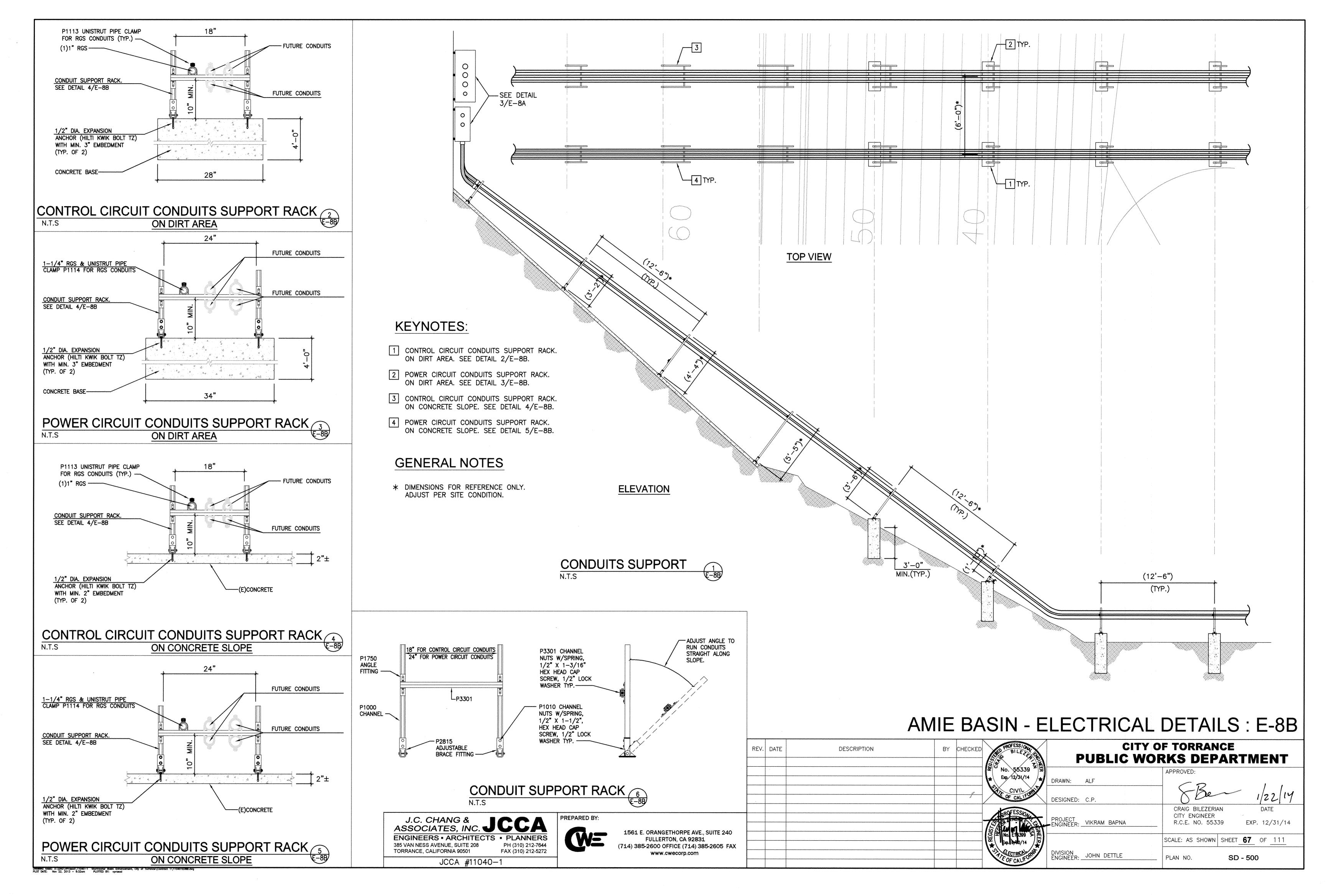
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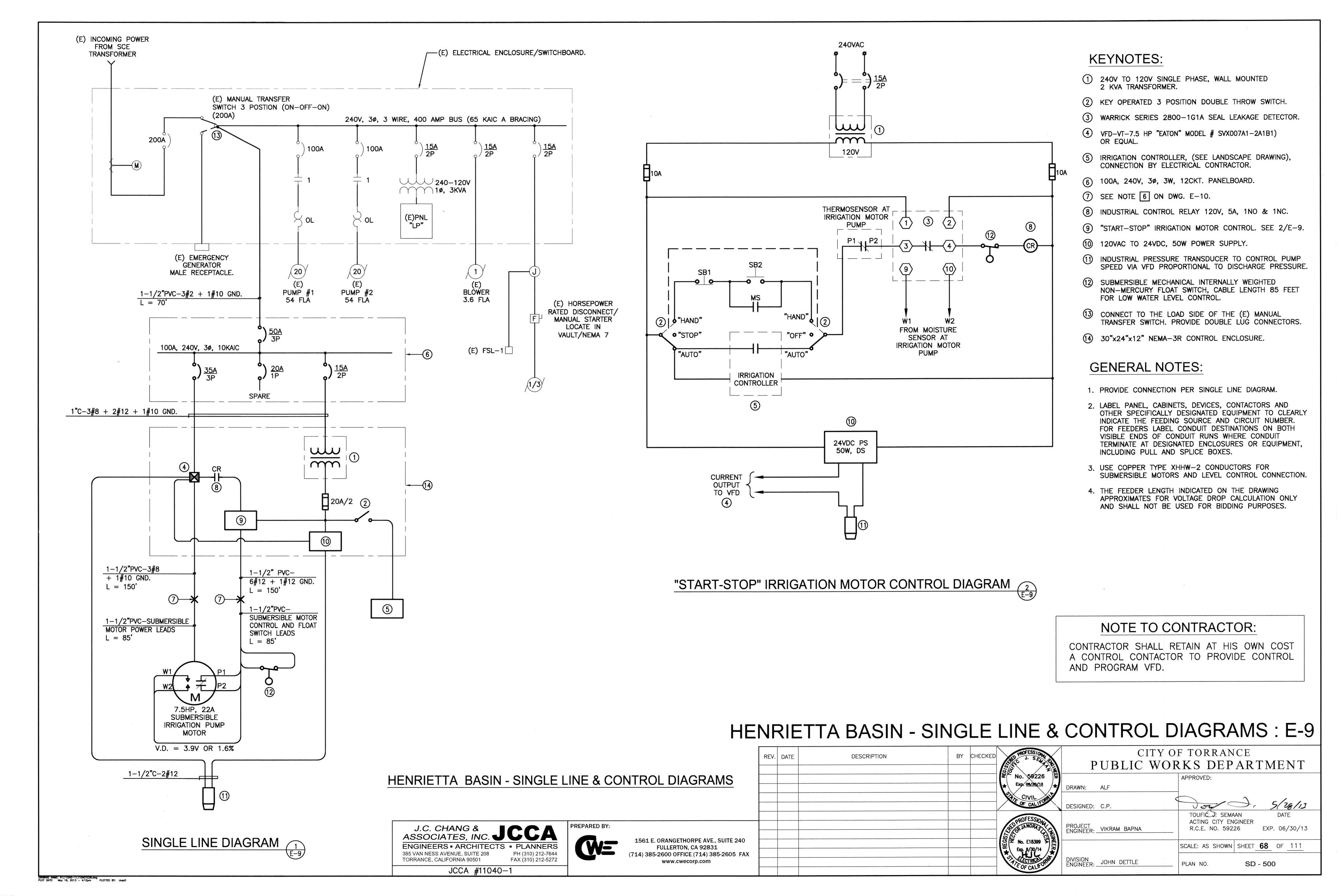
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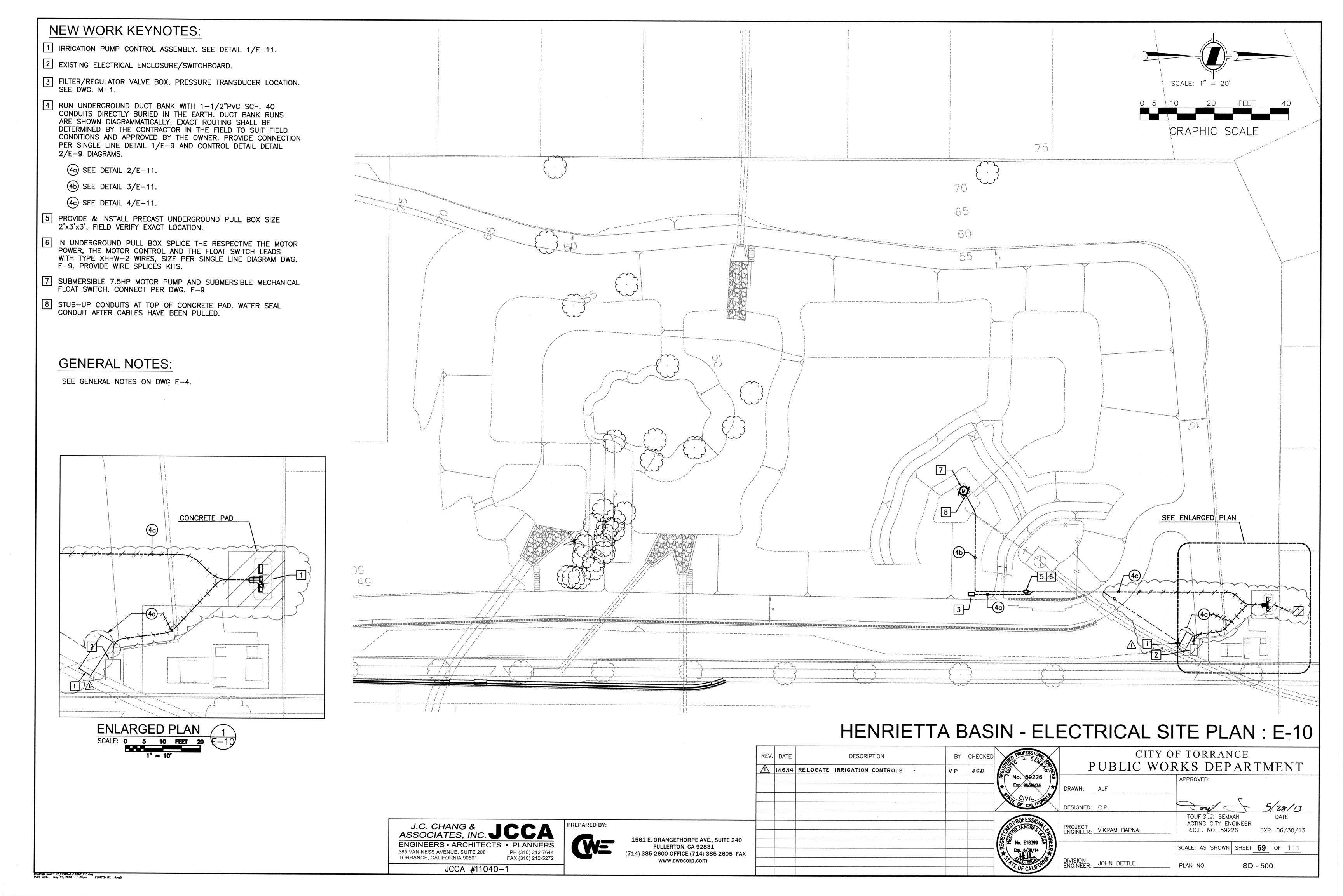
PLOT DATE: Nov 22, 2013 - 9:31cm PLOTTED BY: vprasad

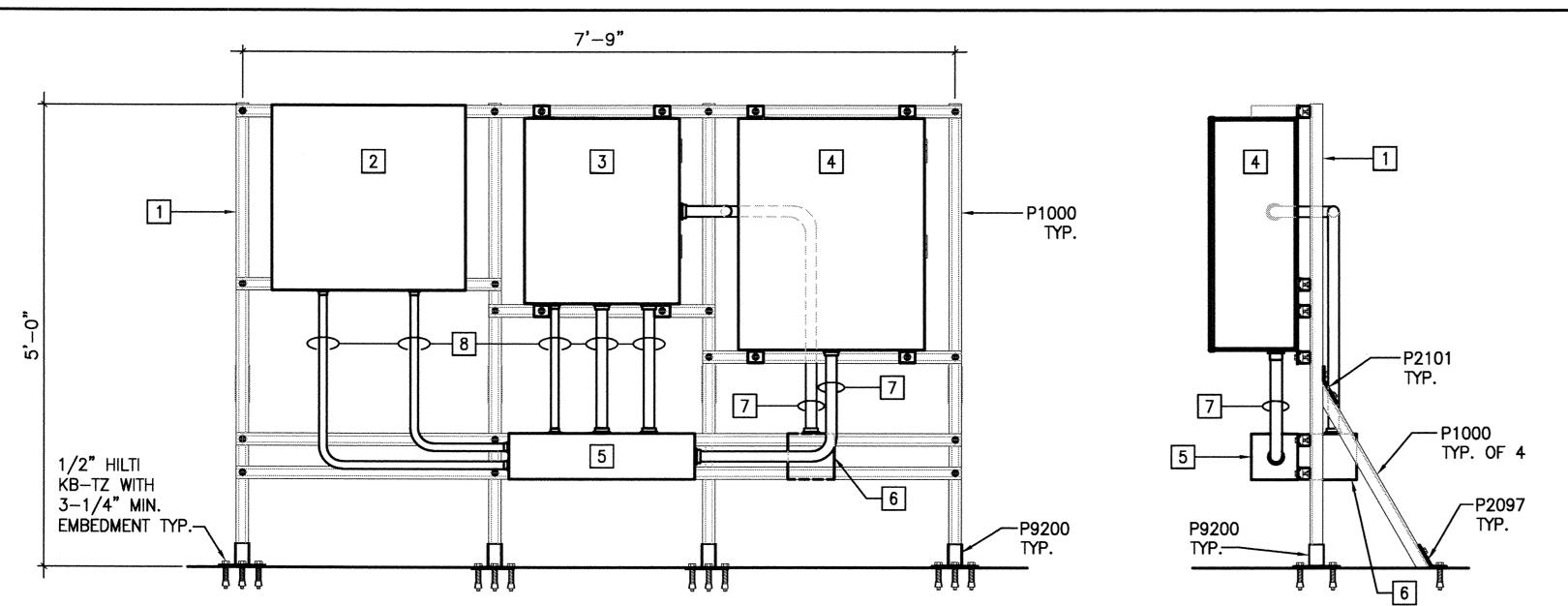


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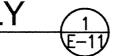


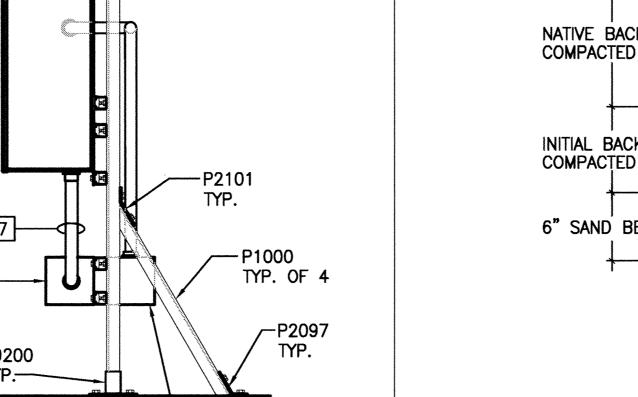


KEYNOTES:

- 1 PROVIDE UNISTRUT SUPPORT FOR IRRIGATION MOTOR CONTROL ASSEMBLY, DIMENSION PER ACTUAL SIZES OF EQUIPMENT
- PROVIDE 100A, 240V, 3-PHASE, 3-WIRE, 12CKT. PANELBOARD. SEE SINGLE LINE DIAGRAM DWG. E-8.
- 3 PROVIDE 30"x24"x12" NEMA-3R STAINLESS STEEL WITH HANGER KEY LOCKABLE DOOR CONTROL ENCLOSURE. INSIDE ENCLOSURE INSTALL DEVICES/COMPONENTS AND PROVIDE CONNECTION PER SINGLE LINE & CONTROL DIAGRAMS, SEE DWG. E-8.
- 4 IRRIGATION CONTROLLER, SEE LANDSCAPE DWG. CONNECTION BY ELECTRICAL CONTRACTOR.

IRRIGATION PUMP CONTROL ASSEMBLY



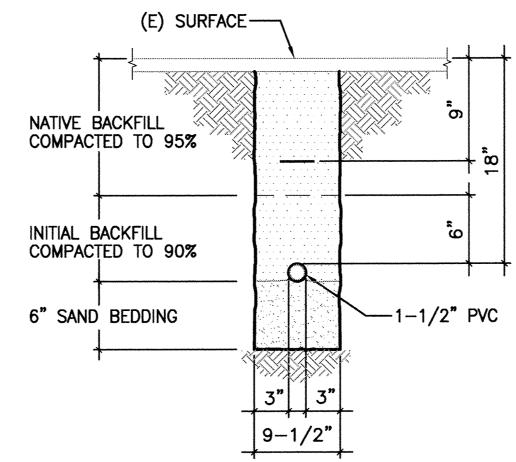


5 6"x6"X24" NEMA-3R GUTTER.

6 6"x4"x3" NEMA-3R PULL BOX.

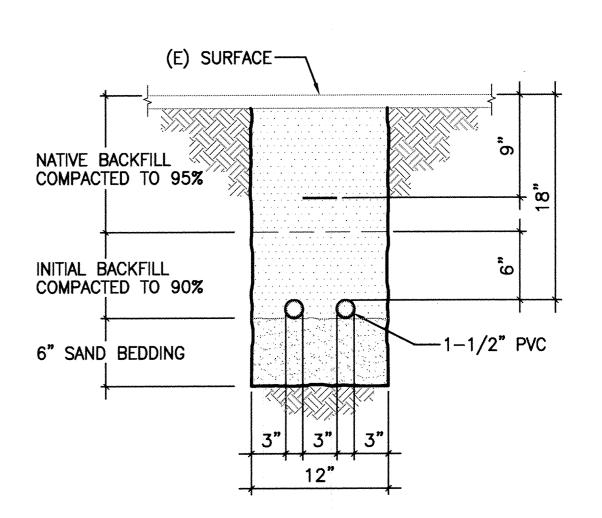
7 3/4"RGS CONDUIT.

8 1" RGS CONDUIT.



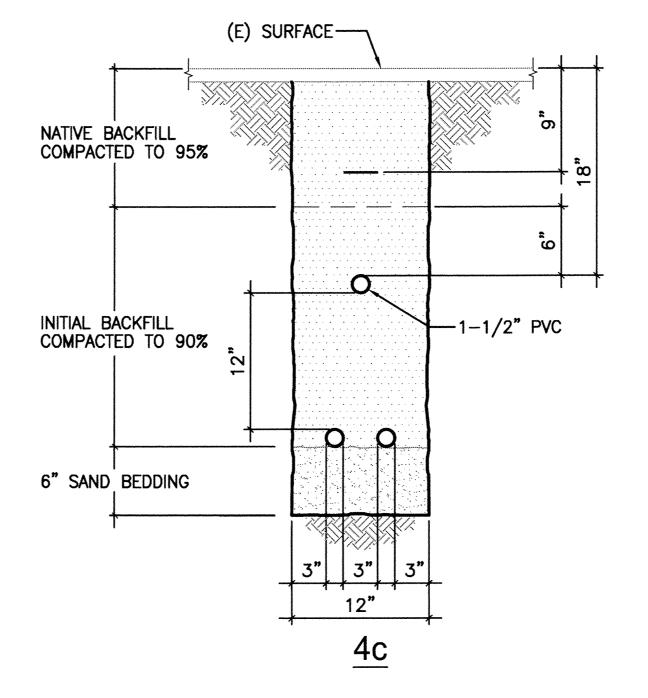
4a

TRENCH DETAIL SCALE: N.T.S.



4b

TRENCH DETAIL



TRENCH DETAIL 4

HENRIETTA BASIN - ELECTRICAL DETAIL : E-11

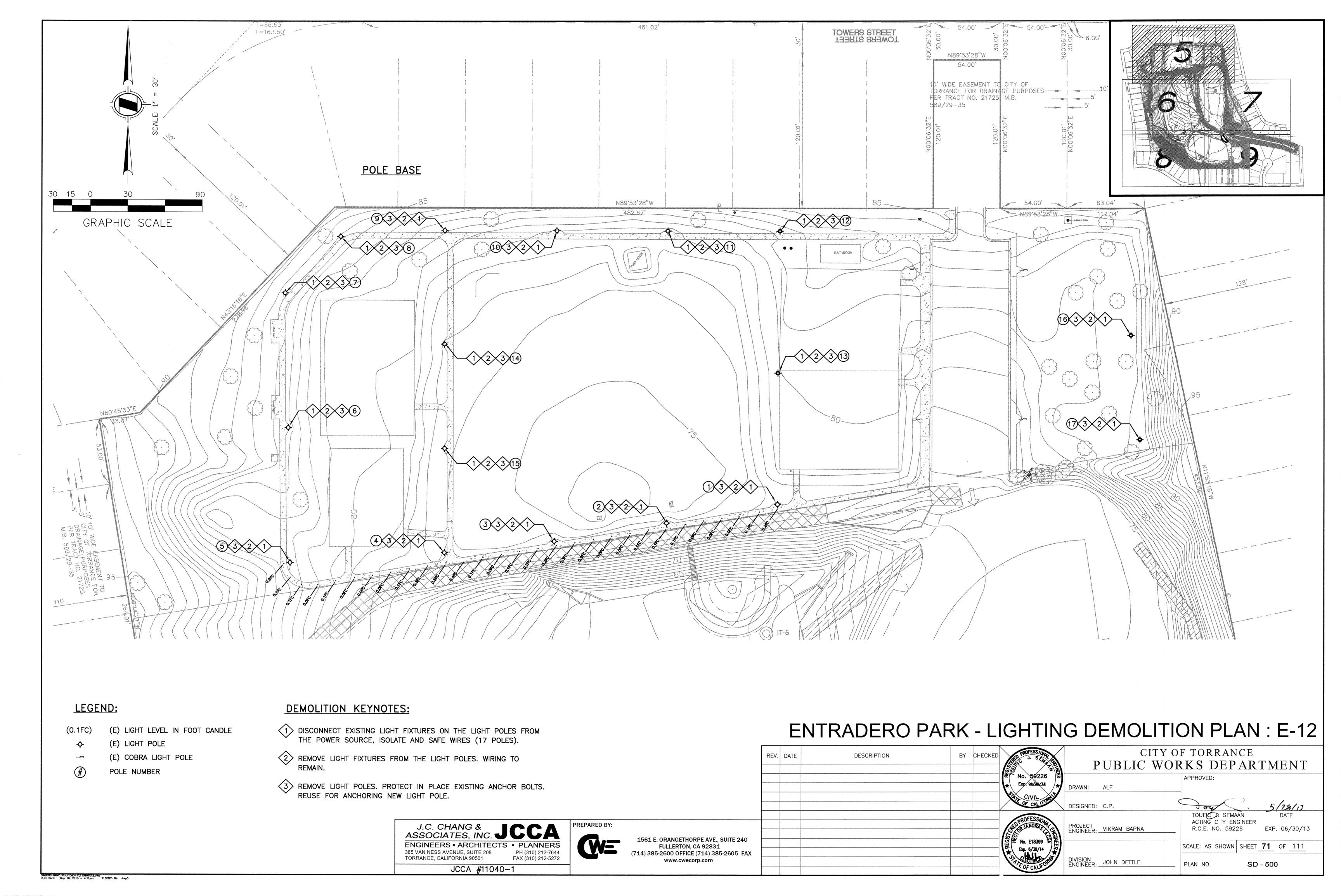
CITY OF TORRANCE REV. DATE DESCRIPTION BY CHECKED PUBLIC WORKS DEPARTMENT DRAWN: ALF 5/28/13 DESIGNED: C.P. ACTING CITY ENGINEER PROJECT ENGINEER: VIKRAM BAPNA R.C.E. NO. 59226 EXP. 06/30/13 SCALE: AS SHOWN SHEET 70 OF 111 DIVISION JOHN DETTLE SD - 500 PLAN NO.

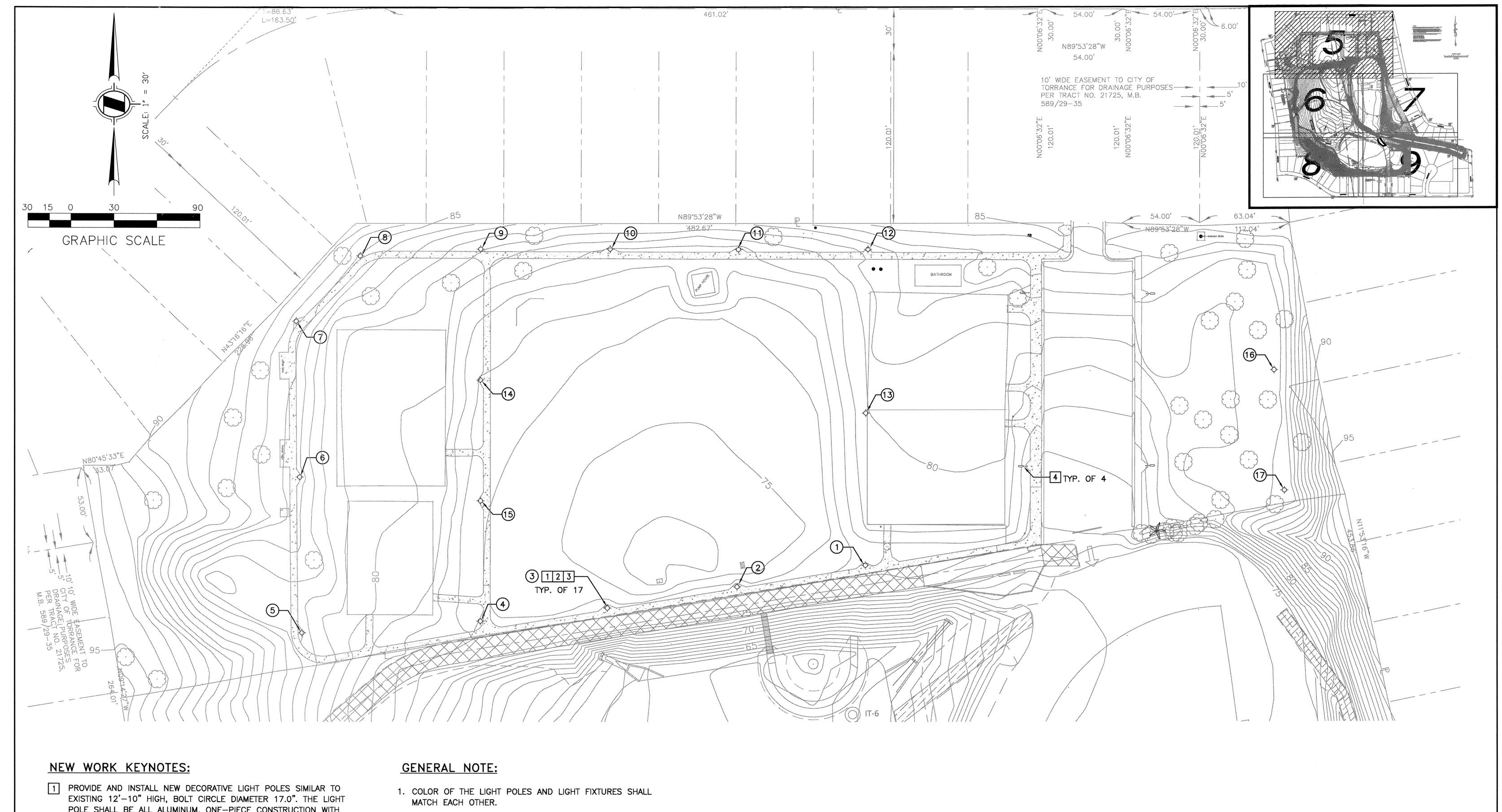
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JCCA #11040-1



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- PROVIDE AND INSTALL NEW DECORATIVE LIGHT POLES SIMILAR TO EXISTING 12'-10" HIGH, BOLT CIRCLE DIAMETER 17.0". THE LIGHT POLE SHALL BE ALL ALUMINUM, ONE—PIECE CONSTRUCTION WITH CLASSIC FLUTED DESIGN, TENON DIAMETER PER ACTUAL SIZE OF THE LIGHT FIXTURE. PROPOSED LIGHT POLE TYPE "HOLOPHANE" "NORWICH ALUMINUM" CAT. # NOA130TN21P07LABBZ OR EQUAL.
- PROVIDE AND INSTALL ON THE POLES NEW DECORATIVE FULL CUTOFF LED LIGHT FIXTURES TYPE "HOLOPHANE" DECORATIVE OUTDOOR "UTILITY POSTOP" SERIES ACT. # PUL0705KASZL3S OR EQUAL.
- 3 RESTORE WIRING CONNECTION
- 4 (E) COBRA TYPE LIGHT FIXTURES TO REMAIN

2. FIELD VERIFY ANCHOR BOLT CONDITION TO REUSE THEM FOR ANCHORING NEW LIGHT POLE.

LEGEND:

(#) POLE NUMBER

J.C. CHANG & JCCA
ASSOCIATES, INC. JCCA
ENGINEERS • ARCHITECTS • PLANNERS
385 VAN NESS AVENUE, SUITE 208
TORRANCE, CALIFORNIA 90501 PH (310) 212-7644
FAX (310) 212-5272

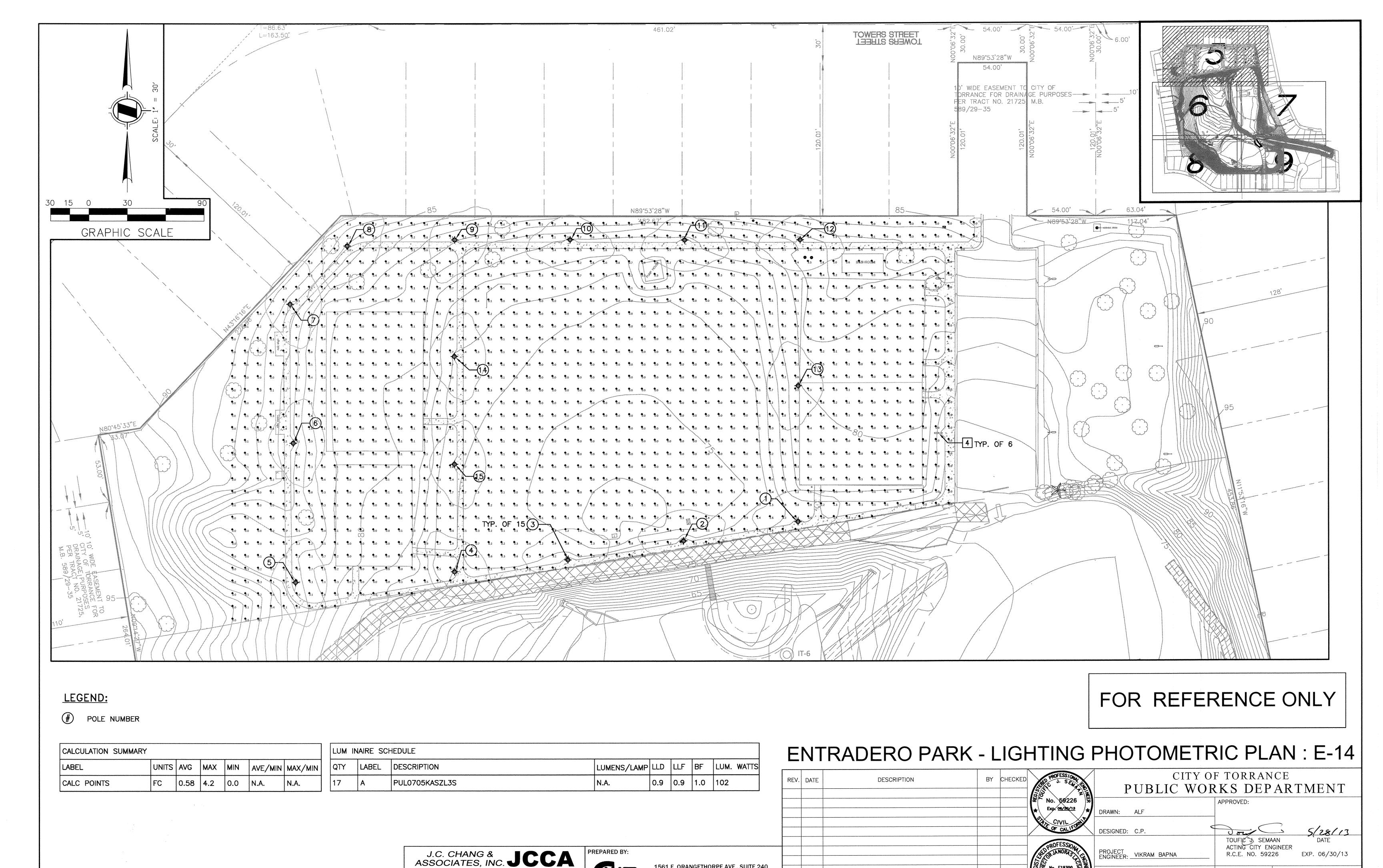
JCCA #11040-1



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ENTRADERO PARK - NEW LIGHTING PLAN: E-13

RE	V. DATE	DESCRIPTION	BY CHECKED	PROFESS/OUL	CITY	OF TORRANCE
				No. 59226	PUBLIC WO	RKS DEPARTMENT
						APPROVED:
				Exp. 06/30/13	DRAWN: ALF	
				OF CALIFORNIA	DESIGNED: C.P.	TOUFIC J. SEMAAN DATE
				PROFESSIONAL CONTROL OF THE PROPERTY OF THE PR	PROJECT ENGINEER: VIKRAM BAPNA	TOUFIC J. SEMAAN DATE ACTING CITY ENGINEER R.C.E. NO. 59226 EXP. 06/30/13
-				SS No. E18399 SX REE R. 6/30/14 R	:	SCALE: AS SHOWN SHEET 72 OF 111
				OF CALFORNIA	DIVISION ENGINEER: JOHN DETTLE	_ PLAN NO. SD - 500



1561 E. ORANGETHORPE AVE., SUITE 240

FULLERTON, CA 92831 (714) 385-2600 OFFICE (714) 385-2605 FAX

ENGINEERS - ARCHITECTS - PLANNERS

JCCA #11040-1

FAX (310) 212-5272

TORRANCE, CALIFORNIA 90501

SCALE: AS SHOWN SHEET 73 OF 111

SD - 500

PLAN NO.

DIVISION JOHN DETTLE

YMBOL	DESCRIPTION	MANUF.	PART # AND DESCRIPTION	DETAIL/SHT REFERENCE
S	BASKET STRAINER	HAYWARD	MODEL #72 BASKET STRAINER 1" - 8" SIZE W/ FLANGED CONNECTIONS AND 80 MESH FILTER ELEMENT	3/L-3
AF	AUTO FLUSH FILTER	J.D.G.T	GTE-015-LE AUTO FLUSH FILTER 11/2" SIZE, INSTALL DOWNSTREAM OF BOOSTER PUMP BOOSTER PUMP BY OTHERS. CONTACT RYAN GRIFFIN AT JOHN DEERE GREEN TECH 949-836-7940.	4/L-3
\square	MASTER CONTROL VALVE WITH VALVE BOX	SUPERIOR	MODEL 3200 2" NORMALLY CLOSED, BRASS MASTER CONTROL VALVE	5/L-3
	FLOW SENSOR ASSEMBLY WITH VALVE BOX	J.D.G.T.	1.5" PVC FLOW SENSOR, INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND WIRE TO CONTROLLER. PART OF CONTROLLER ASSEMBLY LISTED BELOW.	6/L-3
~	ISOLATION VALVE (LINE SIZE) WITH VALVE BOX	LASCO	SCH. 80 TRUE UNION BALL VALVE	7/L-3
•	QUICK COUPLER VALVE WITH VALVE BOX	RAIN BIRD	33 DLRC (3/4") QUICK COUPLER VALVE, INSTALL WITHIN 10" ROUND VALVE BOX	8/L-4
•	REMOTE CONTROL VALVE WITH VALVE BOX	RAIN BIRD	PESB-R (1", 11/2", OR 2") SERIES PVC REMOTE CONTROL VALVE, SIZE AS SHOWN	9/L-4
	CONTROLLER ASSEMBLY	RAIN MASTER J.D.G.T.	SA6-RM2-XX/MVR/RSE/FSF-150P/ISO-300 RMEXXEGI EAGLE CONTROLLER WITH INTERNET COMMUNICATIONS CARD (I CENTRAL), SEE PLAN FOR STATIONS, W/FLOW SENSING AND MASTER VALVE RELAY. CONTACT RYAN GRIFFIN AT JOHN DEERE GREEN TECH (J.D.G.T.) 949-836-7940.	10/L-4 11/L-4
R	RAIN SENSOR	HUNTER	MINI-CLIK RAIN SENSOR, MOUNT TO REAR OF ENCLOSURE AND WIRE TO CONTROLLER	N/A
	ELECTRICAL POWER	N/A	120 VOLT ELECTRICAL POWER, PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD	N/A
M	SUB-METER	NEPTUNE	1.5" IRRIGATION SUBMETER FOR LITTLE LEAGUE FIELD. INSTALL IN JUMBO BOX.	N/A
$\longrightarrow \longrightarrow -$	LATERAL LINE TRANSITION	AS APPROVED	TRANSITION BETWEEN BURIED LATERAL AND ON-GRADE LATERAL	N/A
	LATERAL LINE ON-GRADE	AS APPROVED	UVR PVC PIPE 3/4" - 3" SCH. 40 AS LATERAL LINES ON GRADE STAKE PIPE AT 8' O.C. USING #4 REBAR J-HOOKS	12/L-4
	LATERAL LINE	AS APPROVED	PURPLE 'RECYCLED WATER' PVC PIPE 3/4" - 3" SCH. 40 AS LATERAL LINES 12" BELOW GRADE	13/L-4
	MAINLINE ON-GRADE	AS APPROVED	PURPLE 'RECYCLED WATER' PVC PIPE 3" CL. 315 SOLVENT WELD AS MAINLINES ON-GRADE STAKE PIPE AT 8' O.C. USING #4 REBAR J-HOOKS	12/L-4
	MAINLINE	AS APPROVED	PURPLE 'RECYCLED WATER' PVC PIPE 3"-4" CL. 315 SOLVENT WELD AS MAINLINES 24" BELOW GRADE	13/L-4
	SLEEVE UNDER PAVEMENT	AS APPROVED	PVC PIPE SCH. 40 AS SLEEVING, TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED PLACE BELOW ALL PAVING, HARDSCAPE, ETC., AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE.	15/L-4
NO SYMBOL	CONTROL WIRE	AS APPROVED	IRRIGATION CONTROL WIRE #14UF AWG DIRECT BURIAL (U.L. APPROVED)	14/L-4 15/L-4
NO SYMBOL	WIRE CONNECTORS	3M	DBY-6 DIRECT BURIAL WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE CONNECTIONS (U.L. APPROVED)	14/L-4
NO SYMBOL	VALVE BOXES	NDS	PURPLE PRO SERIES/PRO SERIES PLUS VALVE BOXES, SIZE PER EQUIPMENT DETAILS, LEGEND, AND SPECIFICATIONS. FOR FLUSH VALVES AND AIR RELIEF VALVES USE MODEL 208BC, 10" ROUND SHALL BE MODEL 312BCB, 14" X 19" STANDARD RECT. SHALL BE MODEL 314BCB, 13" X 20" JUMBO RECT. SHALL BE MODEL 318BCB 13" x 24" JUMBO RECT. SHALL BE MODEL 222BCB, 17" X 30" JUMBO RECT. SHALL BE MODEL 226BCB. VALVE BOXES SHALL HAVE PURPLE BODY AND PURPLE LID. FOR USE IN NON-VEHICULAR TRAFFIC SITUATIONS ONLY. DO NOT INSTALL IN CONCRETE OR ASPHALT.	N/A
NO SYMBOL	RECLAIMED WATER SIGNS	AS APPROVED	RECLAIMED WATER WARNING SIGNS, VERIFY ACTUAL QUANTITY AND LOCATIONS IN FIELD	17/L-5

WATER METE		POC#1		LOSS CALCULATIONS WATER METER SIZE (Inches)					
	RADE LINE (FT)	rvv*:	WATER ME						
	IFFERENCE (FT)	•	STATIC PRE	0.0					
· (c(c		<u> </u>							
	NTROL VALVE #	A8	REMOTE CO	1,50					
R.C.V. DEMAI		49	TOTAL DEM	49					
HIGHEST HEA	AD SERVED (FT)	52	<i>y</i> [
***************************************	eney + associates	BY SWEEN	EY & ASSOCI SON, COMPA	ATES, INC	C. UNA	UTHORIZE I IS FORBI	THIS PROJEC D USE BY AN DDEN WITHOU		
SIZE (Inches)	DESCRIPTION			FLOW	#	LOSS			
N/A	SERVICE LINE (50 FT O	F TYPE K COI	PPER)	N/A	1	0.00	PSI		
N/A	WATER METER (XXXX T		3.040	N/A	2	0.00	PSI		
2.00	BASKET STRAINER	***********************************	\$\frac{1}{2} \left(\frac{1}{2} \right) \frac{1}{2} \right) \frac{1}{2} \right(\frac{1}{2} \right) \frac{1}{2} \right) \frac{1}{2} \right(\frac{1}{2} \right) \frac{1}{2} \right) \frac{1}{2} \right(\frac{1}{2} \right) \frac{1}{2} \right) \frac{1}{2} \right(\frac{1}{2} \right)	49	3	0.50	PSI		
N/A	FILTRATION (WYE FILTE	PR)		N/A	4	0.00	PSI		
N/A	PRESSURE REGULATO	R (WILKINS 5	OOHLR)	N/A	5	0.00	PSI		
N/A	BFD ASSEMBLY PIPING			49	6	0.00	PSI		
2.00	MASTER CONTROL VAL			49	7	0.79	PSI		
1.50	FLOW SENSOR			49	8	1.00	PSI		
3.00	ISOLATION VALVES (8A	ALL TYPE)		49	9	1.00	PSI		
3.00	490 FEET OF MAINLINE	: CL. 315 PVC		49	10	1.37	PSI		
N/A	XXXX FEET OF MAINLIN	IE: CL. 315 PV	C	N/A	11	0.00	PSI		
N/A	XXXX FEET OF MAINLIN	IE: CL 315 PV	(N/A	12	0.00	PS)		
3.00	3 - 90 DEGREE ELBOW	S		49	13	0.14	PSI		
1.50	REMOTE CONTROL VAI	LVE ASSEMB	LY	49	14	1.92	PSI		
10%	LATERAL LINE LOSSES	5.Z.:		49	15	4.50	PSI		
20%	FITTING LOSS (IN ADDIT				16	0.27	PSI		
24.00	ELEVATION CHANGE (F	2.0.C. TO HIG	HEST HEAD)	N/A	17	10.39	PSI		
TOTAL SYSTI	EM PRESSURE LOSS (SI	JM OF #1 THE	₹U #17)		18	21.9	PSI		
	REQUIRED AT HEAD (OP)				19	45.0	PSI		
	SURE REQUIRED (SUM (20	66.9	PSI		
	ER PRESSURE (FROM A				21	0.0	PSI		
RESIDUAL PI	RESSURE (SUBTRACT#2	0 FROM #21)			22	-66.9	PSI		
SET PRV OR	MCV AT (#20 PLUS 10 P	SI)			23	N/A	PSI		
	BOOST, IF REQUIRED (SE		E 20 PSI RES	IDUAL)	24	86.9	PSI		

SPRINKLER LEGEND								
SYMBOL	MANUFACTURER & PART #	DESCRIPTION	NOZZLE	PSI F	RADIUS	GPM	DETAIL	
•	HUNTER PROS-12-PRS40-CV-R	12" POP-UP HEAD	MP 1000	40	14'	0.75	1/L-3	
Θ	"	"	"	40	14'	0.37	"	
("	"	"	40	14'	0.19	"	
©	17	"	MP 2000	40	20'	1.47	,,	
Θ	"))	"	40	20'	0.74	, ,,	
©	"	27	"	40	20'	0.40	>>	
(a)	,,	"	MP 3000	40	30'	3.64	>>	
©	"	"	23	40	30'	1.82	23	
(33	"	>>	40	30'	0.86	>>	
∇	RWS-B-C-1401-GRATE-P BUBBLE REPRESENTS TWO BUBBLERS PER N FOR RELOCATED TREES PLACE BUB ON OPPOSITE SIDES OF TREE TYPIC	30	N/A).5(EA)	16/L-9			

DROZONE	HYDROZONE DESCRIPTION	IRR METHOD	IRRIGATION METHOD DESCRIPTION
1	SHRUBS IRRIGATED WITH ROTORS	BUBB	POP-UP BUBBLER HEADS
2	SHRUBS IRRIGATED WITH MP ROTATORS	MRTR	POP-UP MP ROTATOR HEADS
3	TURF IRRIGATED WITH ROTORS	ROTR	POP-UP ROTOR HEADS
4	TREES IRRIGATED WITH BUBBLERS		

sweeney + associates IRRIGATION DESIGN AND CONSULTING 321 Rampart Street, Suite 209 Orange, Ca 92868 e: info@sweeneyassoc.com it: (714) 938-0456

w: www.sweeneyassoc.com [f: (714) 938-0456



PREPARED BY:

1561 E. ORANGETHORPE AVE., SUITE 240 **FULLERTON, CA 92831** (714) 385-2600 OFFICE (714) 385-2605 FAX www.cwecorp.com

SPECIFICATIONS.

REV. DATE

ROTO)R IFGFND — HFN	NRIETTA & ENTRADE	RO BASIN	S				CONTROLLER/STATION NUMBER
SYMBOL	MANUFACTURER & PART #	DESCRIPTION	NOZZLE		RADIUS	GPM	DETAIL	VALVE SIZE VALVE FLOW (GPM)
		-SS-NP-10 POP-UP ROTOR HEA		50	53'		1/L-3	
	"	"	"	50	53'	"	"	A20 1" 35 30 — OPERATING PRES
7	"	"	"	50	53'	"	>>	
	"	"	"	50	53'	33	"	2 DRIP 0.52 1,500 - ZONE AREA (SFT)
0	"	"	8	50	51'	5.50	"	
$\overline{\smile}$	"	23	"	50	51'	,,	"	ZONE PRECIPITATION RATE
[[["	23	,,	50	51'	,,	,,	IRRIGATION METHOD
₩.	"	33	"	50	51'	,,	"	HYDROZONE NUMBER
	"	"	6	50	49'	3.70	"	
8	"	"	"	50	49'	,,	,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,	LANDSCAPE IRRIGATION WATER ANALY
	33))))	"	50	49'	,,	,,	PROJECT: Amie Basin
	"		"	50	49'	,,		City Of Torrance, CA
\odot	5012-PL-PC/FC-SAM-R-NP	12" POP-UP ROTOR HEAD	5000-MPR-35	5 45	35'	7.58	1/L-3	Poc #1
Θ	"	"	,,	45	35'	3.81	,,,	ETo; = 50.1 HA = 59,555
•	39	"	***	45	35'	2.46	,,,	SLA = 0 LA = 59,555
•	29	"	"	45	35'	1.92	,,,	
0	"	13	5000-MPR-30		30'	5.78	"	MAXIMUM APPLIED WATER ALLOWANCE: TOTAL MAWA=(Eto)(0.62)(0.7 x LA) + (0.3 x SLA)) 1,294,92
Θ	"	13	"	45	30'	2.96	,,	TOTAL MAWA=(Eto)(0.62)[(0.7 x LA) + (0.3 x SLA)] 1,294,92
<u> </u>	"	27	>>	45	30'	1.85	,,	
<u>©</u>	75	23	, , , , , , , , , , , , , , , , , , ,	45	25'	1.40	>>	TOTAL ESTIMATED APPLIED WATER USED: TOTAL EAWU=(Eto x 0.62) x [(HA x PF)/IE) + SLA)] 924,94
•	"	2)	5000-MPR-25	5 45 45		3.82	,,	101/12 E/11/0 (E/0/ 0.02) / 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/ 11/0/
<u> </u>	"	23	"		25' 25'	1.38	,,	TOTIVITED AND IED WATER ISER.
<u> </u>	"	33	"	45 45		1.00	"	ESTIMATED APPLIED WATER USED: EAWU= (ETo)(0.62) x [(HA x PF)]
				1 43	1 23	1 1.00		TE T
ROTO	DR LEGEND — AM	IE BASIN						HYDROZONE #1: (Mixed water use Shrub Area irrigated with Rotors)
		DESCRIPTION	NOZZLE PS	l DADIII	S CPA	1 DET	ΔΙΙ	$50.1 \times 0.62 \times 59.555 \times 0.4 = 924.94$
SYMBOL	T T		5000-MPR-35 40			3 2/L -		0.8
<u> </u>	RAINBIRD-S-PL-PC/FC SAM	"						MAXIMUM APPLIED WATER ALLOWANCE: 1,294,9
<u> </u>	33	"	" 40					TOTAL ESTIMATED APPLIED WATER USE: 924,9
<u>•</u>	13	"	" 40					
<u>•</u>	"		" 40 5000-MPR-30 40					I HAVE COMPLIED WITH THE CRITERIA OF THE
<u> </u>	"	"	" 40					IRRIGATION GUIDELINES AND APPLIED THEM
) (A)	33	,,	" 40 " 40					ACCORDINGLY FOR THE EFFICIENT USE OF WAT
8	33	"	" 40		1,00			THE IRRIGATION DESIGN PLAN
•	"	"	5000-MPR-25 40					
								NOTE

IRRIGATION NOTES

ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.

40 25' 1.98

25' 1.38

25' | 1.00 |

- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK

DESCRIPTION

- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.
- THIS DESIGN IS DIAGRAMMATIC. ALL EQUIPMENT SHOWN IN PAVED AREAS IS FOR DESIGN CLARITY ONLY AND IS TO BE INSTALLED WITHIN PLANTING AREAS.
- 6. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CHANGES DEEMED NECESSARY BY THE OWNER.
- 7. INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.
- 8. ACTUAL LOCATION FOR THE INSTALLATION OF THE BACKFLOW PREVENTER AND THE AUTOMATIC CONTROLLER IS TO BE DETERMINED IN THE FIELD BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
- CONTRACTOR IS TO PROVIDE AN ADDITIONAL PILOT WIRE FROM CONTROLLER ALONG ENTIRETY OF MAIN LINE TO THE LAST RCV ON EACH AND EVERY LEG OF MAIN LINE. LABEL SPARE WIRES AT BOTH ENDS.
- ALL PIPE UNDER PAVED AREAS TO BE INSTALLED IN SLEEVING TWICE THE DIAMETER OF THE PIPE CARRIED. SEE LEGEND FOR TYPE. ALL WIRE UNDER PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE THE SIZE REQUIRED TO EASILY PULL WIRE THROUGH. ALL SLEEVES TO BE INSTALLED WITH A MINIMUM DEPTH AS SHOWN ON THE SLEEVING DETAILS. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF THE PAVING.
- 11. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED IN SHRUB OR GROUND COVER AREAS WHERE POSSIBLE. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL ALL QUICK COUPLER AND REMOTE CONTROL VALVES WITHIN 18" OF HARDSCAPE.
- 12. ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDINGS, WALLS, FENCES AND HARDSCAPE. THIS INCLUDES, BUT NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF PRESSURE COMPENSATING SCREENS, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE REPLACEMENT OF NOZZLES WITH ADJUSTABLE ARC UNITS.
- 13. THE CONTRACTOR SHALL USE PROPER GROUNDING TECHNIQUES FOR GROUNDING THE CONTROLLER AND RELATED EQUIPMENT PER MANUFACTURERS SPECIFICATIONS. SWEENEY AND ASSOCIATES RECOMMENDS MEASURING FOR PROPER GROUND AT LEAST ONCE ANNUALLY, AND NECESSARY ADJUSTMENTS MADE TO COMPLY WITH MANUFACTURER

IRRIGATION LEGEND AND NOTES: L-1 CITY OF TORRANCE

LANDSCAPE IRRIGATION WATER ANALYSIS

MAXIMUM APPLIED WATER ALLOWANCE: 1,294,928 Gal./Yr

TOTAL ESTIMATED APPLIED WATER USE: 924,949 Gal./Yr

--- OPERATING PRESSURE (PSI)

1,294,928 Gal./Yr

924,949 Gal./Yr

924,949 Gal./Yr

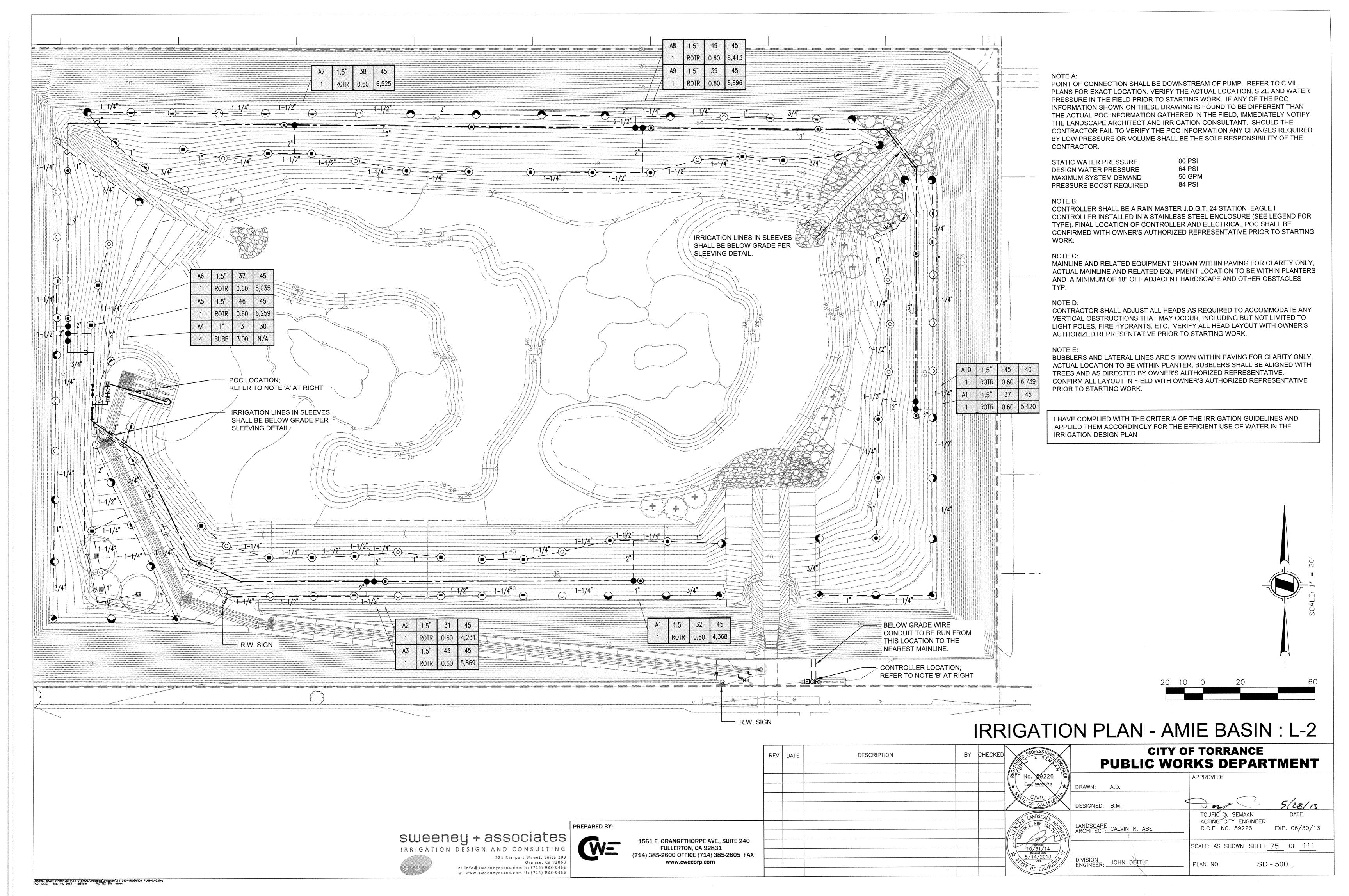
WATER DISTRICT STANDARDS.

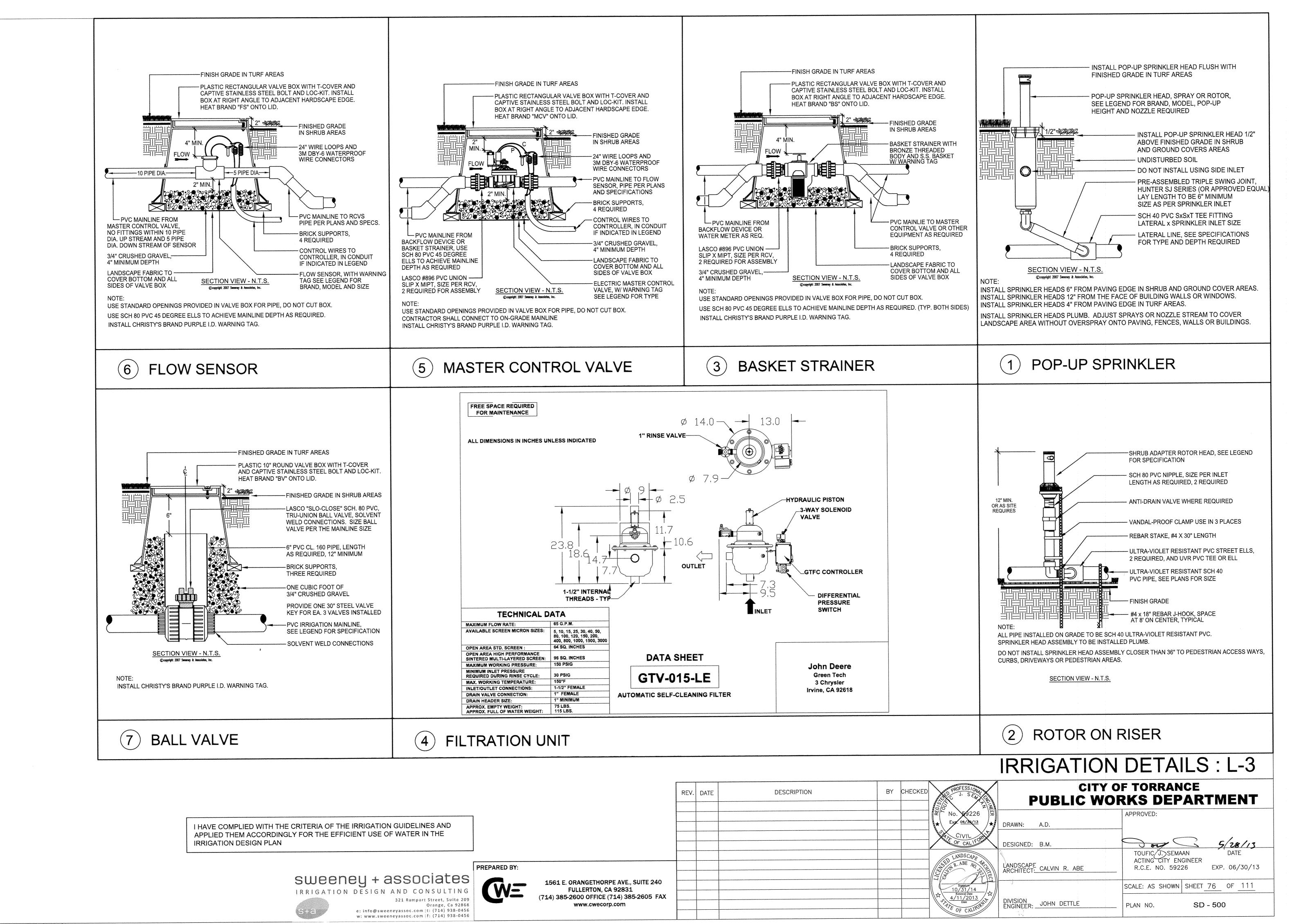
ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN

RECLAIMED WATER SIGNS SHALL BE POSTED PER

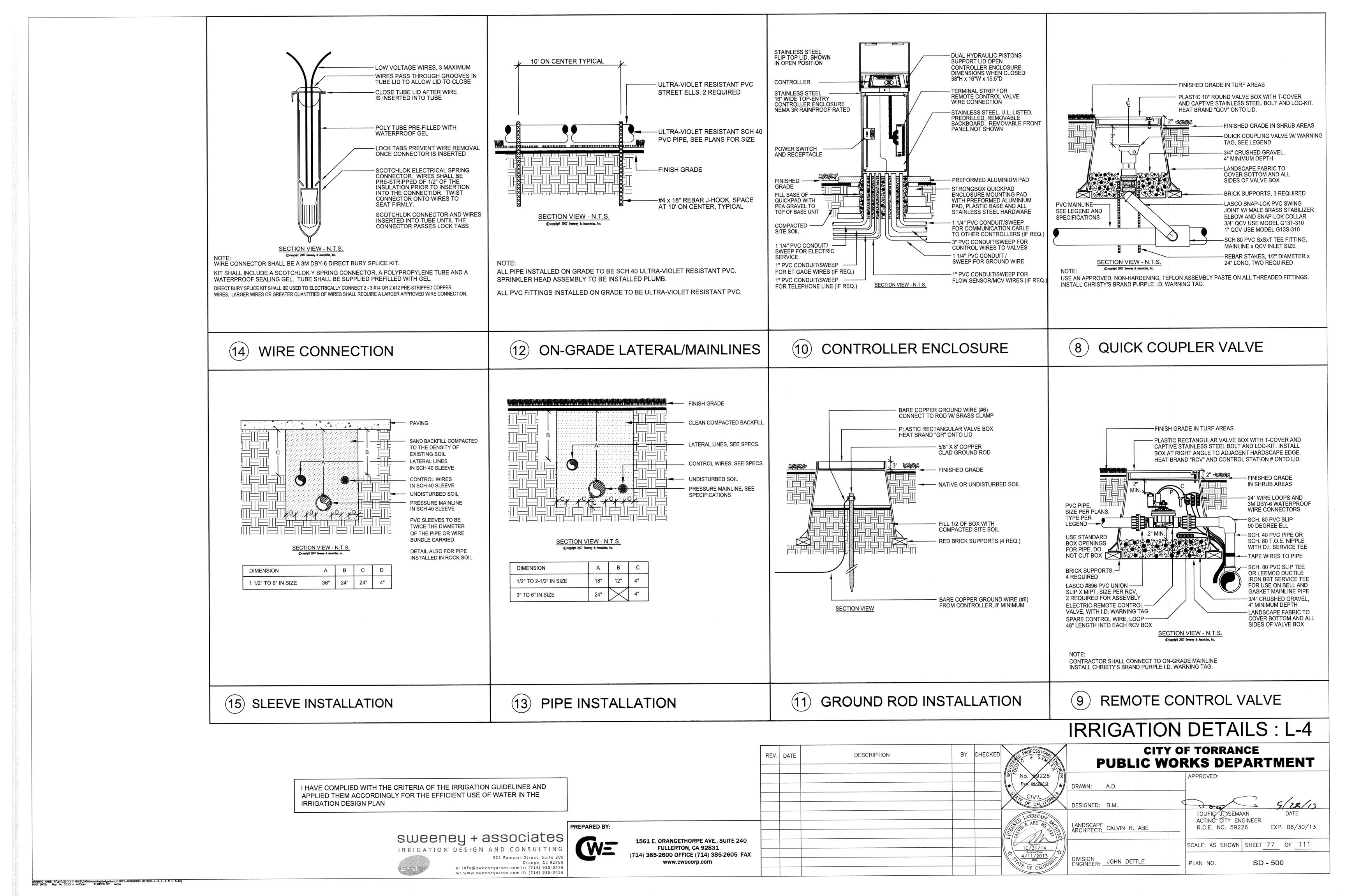
	No. \$9226	POBLIC MOI	KKS DEPARTMENT
	No. ₹9226	DRAWN: A.D.	APPROVED:
	OF CALIFORNIA	DESIGNED: B.M.	5/28/1
	CAPE NO. 30 THE RESERVE THE PROPERTY OF THE PERSON OF THE	LANDSCAPE CALVIN R. ABE	TOUFIC J. SEMAAN DATE ACTING CITY ENGINEER R.C.E. NO. 59226 EXP. 06/30/13
	Signature 10/31/14		SCALE: AS SHOWN SHEET 74 OF 111
	Renewal Date 5/14/2013 Date OF CALIFORNIA	DIVISION JOHN DETTLE	PLAN NO. SD - 500

DRAWING NAME: F:\pri\2011\111015\CAD\incoming\Irrigation\111015-IRRIGATION LEGEND AND NOTES-L-1.dwg
PLOT DATE: May 14, 2013 - 4:01pm PLOTTED BY: geron





DRAWING NAME: F:\pri\2011\111015\CAD\incoming\irrigation\111015-IRRIGATION DETAILS-L-3_L-4 & L-5.dwg
PLOT DATE: May 14, 2013 - 4:02pm PLOTTED BY: earon



RECYCLED/RECLAIMED WATER NOTES:

RECYCLED / RECLAIMED WASTEWATER SYSTEMS SHALL BE CONSTRUCTED IN COMPLIANCE WITH APPLICABLE POTABLE WATER SYSTEM CONSTRUCTION STANDARDS AS WELL AS THOSE SPECIFIED IN 'THE PURPLE BOOK". CALIFORNIA HEALTH LAWS RELATED TO RECYCLED WATER, (CALIFORNIA HEALTH LAWS RELATED TO RECYCLED WATER, (CALIFORNIA HEALTH AND SAFETY CODE, WATER CODE, TITLES 22 AND 17 OF THE CALIFORNIA CODE OF REGULATIONS) AND THE LOS ANGELES COUNTY CODE (LACC), TITLE 28 - PLUMBING, APPENDIX J.

THE MAXIMUM ATTAINABLE SPEARATION OF RECYCLED / RECLAIMED WASTEWATER LINES AND POTABLE WATER LINES SHALL BE ENFORCED IN ORDER TO MINIMIZE POTENTIAL RISKS ASSOCIATED WITH PIPELINE BREAKS RESULTING IN INFILTRATION OF WASTEWATER FROM LEAKING WASTEWATER LINES INTO DOMESTIC WATER LINES, OR ACCIDENTAL CROSS-CONNECTIONS BETWEEN RECYCLED WASTEWATER AND POTABLE WATER SYSTEMS.

PARALLEL CONSTRUCTION: A HORIZONTAL SEPARATION OF AT LEAST TEN FEET (10') SHALL BE REQUIRED BETWEEN PRESSURIZED, BURIED, RECYCLED / RECLAIMED AND POTABLE WATER PIPING (ALL DISTANCE TO BE MEASURED FROM PIPELINE OUTSIDE DIAMETER).

CROSS-OVER CONSTRUCTION: BURIED POTABLE WATER PIPES CROSSING OVER PRESSURIZED RECYCLED / RECLAIMED WATER PIPES SHALL BE LAIDE NOT LESS THAN TWELVE INCHES (12") ABOVE THE RECLAIMED WATER PIPES. RECLAIMED WATER PIPES LAID IN THE SAME TRENCH OR CROSSING-OVER BUILDING SEWER OR DRAINAGE PIPING SHALL BE INSTALLED IN COMPLIANCE WITH THE LACC-TITLE 28, PLUMBING, SECTIONS 609.0 AND 720.0.

UNUSED OR ABANDONED POTABLE WATER LINES: THESE LINES ARE TO BE SEVERED AS CLOSE TO WATER MAINS AS PRACTICLE, CAPPED, AND A TEN FOOT (10") SECTION OF ABANDONED LINE REMOVED AND CEMENTED UNDER DIRECT SUPERVISION BY THE DEPARTMENT.

EXISTING ON-SITE PIPING: MAXIMUM SEPARATION OF RECYCLED / RECLAIMED WASTEWATER LINES AND POTABLE WATER LINES SHALL BE MAINTAINED UPON SYSTEM ADDITIONS OR MODIFICATION.

ALL RECYCLED / RECLAIMED WATER PIPE MATERIALS, VALVES AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE LACC-TITL 28, PLUMBING, SECTIONS 604.0, 605.0 AND 606.0.

ALL RECYCLED / RECLAIMED WASTEWATER LINES (PRESSURE / NON-PRESSURE), VALVE BOXES, HYDRANTS AND APPURTENANCES SHALL BE IDENTIFIED TO CLEARLY DISTINGUISH BETWEEN RECYCLED / RECLAIMED WASTEWATER, NON-POTABLE AND POTABLE WATER SYSTEMS (AS SPECIFIED IN LACC-TITLE 28. PLUMBING, APPENDIX J).

RECYCLED / RECLAIMED WASTEWATER: ALL BURIED, RECYCLED, WASTEWATER SYSTEMS (PRESSURE / NON-PRESSURE), SHALL UTILIZE PURPLE PIPE WIT BLACK UPPERCASE LETTERING "CAUTION: RECYLED WATER - DO NOT DRINK" PRINTED ON OPPOSITE SIDES OF THE PIPE. FOR LIMITED APPLICATION, THE USE OF CONTINUOUS LETTERING ON THREE INCH (3") MINIMUM WIDTH PURPLE TAPE WITH ONE INCH BLACK OR WHITE CONTRASTING UPPERCASE LETTERING "CAUTION RECYCLED WATER - DO NOT DRINK" PERMANENETLY AFFIXED AT INTERVALS NOT TO EXCEED FIVE FEET, ATOP ALL HORIZONTAL PIPING, LATERALS AND MAINS, IDENTIFICATION TAPE SHALL EXTEND TO ALL VALVE BOXES AND/OR VAULTS, EXPOSED PIPING, HYDRANTS AND QUICK COUPLERS. ALL VALVES, EXCEPT FIXTURE SUPPLY CONTROL VALVES SHALL BE EQUIPPED WITH A LOCKING FEATURE. ALL MECHANICAL EQUIPMENT THAT IS APPURTENANT TO THE RECYCLED / RECLAIMED WATER SYSTEM SHALL BE PAINTED PURPLE.

POTABLE WATER: ALL POTABLE WATER LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE AND ALL OTHER APPLICABLE POTABLE WATER SYSTEM CONSTRUCTION STANDARDS. ALL BURIED POTABLE WATER LINES SHALL BE CLEARLY IDENTIFIED BY CONTINUOUS LETTERING ON THREE INCH (3") MINIMUM WIDTH BLUE TAPE WITH ONE INCH (1") WHITE LETTERING BEARING THE REPEATED WORDING "POTABLE WATER" PERMANENTLY AFFIXED AT TEN FOOT INTERVALS ATOP ALL HORIZONTAL PIPING, LATERALS AND MAINS. IDENTIFICATION TAPE SHALL EXTEND TO ALL VALVE BOXES AND/OR VAULTS, EXPOSED PIPING AND HYDRANTS. IDENTIFICATION TAPE IS NOT NECESSARY FOR EXTRUDED COLORED PVC WITH CONTINUOUS WORDING "POTABLE WATER" PRINTED IN CONTRASTING LETTERING ON OPPOSITED SIDES OF THE PIPE.

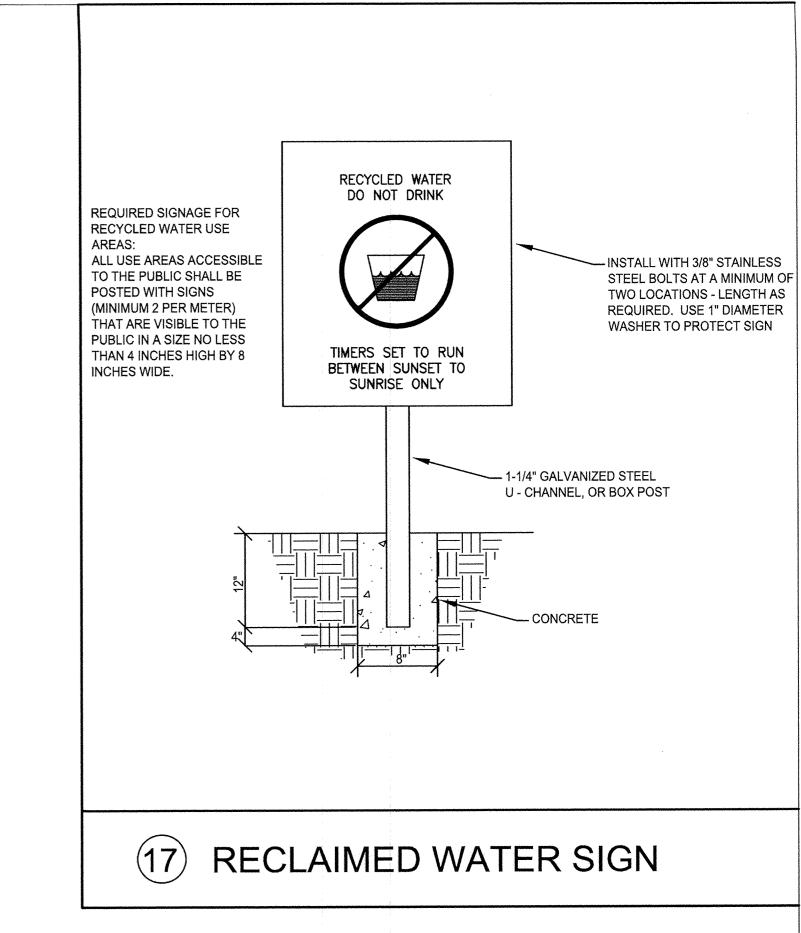
NON-POTABLE WATER: ALL NON-POTABLE IRRIGATION / INDUSTRIAL WATER LINES (PRESSURE / NON-PRESSURE) SHALL BE IDENTIFIED BY CONTINUOUS LETTERING ON THREE INCH (3") MINIMUM WIDTH TAPE WITH ONE INCH (1") CONTRASTING LETTERING BEARING THE CONTINUOUS UPPERCASE LETTERING "NON-POTABLE WATER - DO NOT DRINK" PERMANENTLY AFFIXED AT TEN FOOT (10') INTERVALS ATOP ALL HORIZONTAL PIPING, LATERALS AND MAINS. IDENTIFICATION TAPE SHALL EXTEND TO ALL VALVE BOXES AND/OR VAULTS, CONTROL VALVES, QUICK COUPLING VALVES, OUTLETS AND RELATED APPURTENANCES SHALL BE COLOR-CODED AND LABELED / TAGGED TO DIFFERENTIATE BETWEEN RECYCLED / RECLAIMED WASTEWATER, POTABLE WATER AND NON-POTABLE WATER SYSTEMS. TAGS IDENTIFYING RECYCLED / RECLAIMED WATER SHALL HAVE THE APPROPRIATE IDENTIFICATION ON BOTH SIDES (WORDING ON ONE SIDE AND SYMBOL ON THE OPPOSITE SIDE).

DETERIORATED OR INADEQUATELY PROTECTED WELL WATER CASINGS SHALL BE REPAIRED OR REPLACED TO PROTECT AQUIFERS AGAINST CONTAMINATION FROM RECYCLED / RECLAIMED WASTEWATER SYSTEMS.

AN ON-SITE WATER SUPERVISOR SHALL BE APPOINTED, HAVING THE RESPONSIBILITY FO OVERSIGHT FOR THE PROTECTION OF THE POTABLE WATER SYSTEM (PROVIDED FOR UNDER TITLE 17, SECTION 7586, AND CALIFORNIA CODE OF REGULATIONS). THE NAME AND POSITION OF THE ON-SITE WATER SUPERVISOR SHALL BE REPORTED TO THE WATER PURVEYOR AND TO THE DEPARTMENT. THIS POSITION WILL BE RESPONSIBLE FOR THE INSTALLATION, OPERATION AND MAINTENANCE OF THE RECYCLED / RECLAIMED WASTEWATER AND POTABLE WATER SYSTEMS: AUTHORIZATION OF ANY PIPING CHANGES OR ADDITIONS TO EITHER THE POTABLE OR RECYCLED SYSTEMS; PREVENTION OF POTENTIAL HAZARDS; IMPLEMENTATION OF THE REGULATIONS: AND COORDINATION WITH THE CROSS-CONNECTION PROGRAM OF THE WATER PURVEYOR AND OF THIS

HOSE BIBBS SHAL NOT BE PERMITTED IN ANY AREAS OF PUBLIC ACCESS TO RECYCLED / RECLAIMED WASTEWATER SYSTEMS. TO PREVENT UNAUTHORIZED USE FO RECYCLED WASTEWATER. QUICK-COUPLERS ARE PERMITTED IN LIEU OF HOSE-BIBB OUTLETS BUT SHALL ONLY BE CONNECTED TO RECYCLED / RECLAIMED WASTEWATER LINES. HOSE BIBSS MAY BE PERMITTED IN AREAS THAT ARE NOT ACCESSIBLE TO THE PUBLIC, PROVIDED THEY ARE PROPERLY IDENTIFIED WITH PERMANENTLY AFFIXED TAGS, LABELS, OR PLATES WITH UPPERCASE LETTERING "RECYCLED WATER - DO NOT DIRNK" IN ENGLISH.

THE USE OF RECYCLED / RECLAIMED WASTEWATER FOR IRRIGATION PURPOSES SHALL MINIMIZE EXPOSURE OF THE WASTEWATER SPRAY TO DRINKING FOUNTAINS AND PICNIC TABLES THROUGH SELECTIVE LOCATION OF EQUIPMENT AND BY APPROPRIATE IRRIGATION SYSTEM DESIGN ADDITIONALLY, THE FOLLOWING MEASURES SHOULD BE TAKEN: RECYCLED WASTEWATER SPRAYING SHALL BE DONE DURING HOURS OF LEAST PUBLIC EXPOSURE, ANY AREA WHERE RECYCLED WASTEWATER IS RELEASED, USED OR IMPOUNDED SHOULD BE POSTED, INFORMING THE PUBLIC THAT RECYCLED WATER IS BEING USED; AND IRRIGATION PRACTICES UTILIZING RECYCLED WATER SHALL BE CONTROLLED TO PREVENT SURFACE



IRRIGATION DETAILS: L-5

DIVISION JOHN DETTLE

CITY OF TORRANCE

PLAN NO.

SD - 500

DESCRIPTION BY REV. DATE CHECKED **PUBLIC WORKS DEPARTMENT 5**9226 DRAWN: A.D. IRRIGATION DESIGN PLAN 5/28/13 DESIGNED: B.M. TOUFJE J. SEMAAN ACTING CITY ENGINEER PREPARED BY: LANDSCAPE CALVIN R. ABE R.C.E. NO. 59226 EXP. 06/30/13 sweeney + associates 1561 E. ORANGETHORPE AVE., SUITE 240 SCALE: AS SHOWN SHEET 78 OF 111 **FULLERTON, CA 92831** IRRIGATION DESIGN AND CONSULTIN

I HAVE COMPLIED WITH THE CRITERIA OF THE IRRIGATION GUIDELINES AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE

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